

**United States Air Force
611th Air Support Group/
Civil Engineering Squadron**

Elmendorf AFB, Alaska

Final

Interim Remedial Action Report

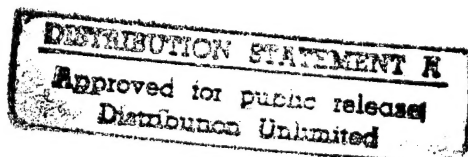
**Cape Lisburne Radar Station,
Alaska**

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Prepared by:

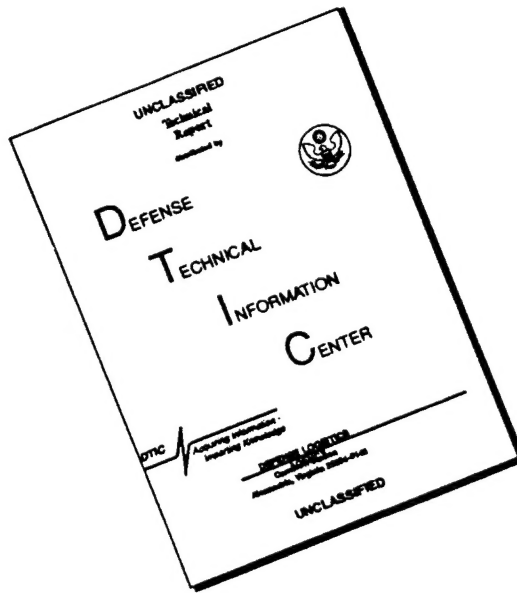
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PREFACE

This report describes the Interim Remedial Actions (IRAs) conducted at the Landfill and Waste Accumulation Area, site LF01, and the Spill/Leak #3, site ST07, located at the Cape Lisburne radar installation in northern Alaska. IRA activities at the sites were conducted during September 1994, May 1995, June 1995, and August 1995. The sites were characterized based on sampling and analyses conducted during Remedial Investigation (RI) activities performed during August and September 1993, and IRA activities at the sites. This report was prepared by ICF Technology Incorporated.

This report was prepared during May through November 1995. Mr. Samer Karmi of the Air Force Center for Environmental Excellence was the Alaska Restoration Team Chief for this task.

Approved:

Thomas McKinney
Program Director
ICF Technology Incorporated

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LIST OF ACRONYMS AND ABBREVIATIONS

ADEC	Alaska Department of Environmental Conservation
Air Force	United States Air Force
AOC	Area of Concern
BTEX	Benzene, Toluene, Ethylbenzene, and Xylenes
DFA	Diesel Fuel Arctic
DRPH	Diesel Range Petroleum Hydrocarbons
DTIC	Defense Technical Information Center
EPA	U.S. Environmental Protection Agency
GRPH	Gasoline Range Petroleum Hydrocarbons
HDPE	High Density Polyethylene
IRA	Interim Remedial Action
IRP	Installation Restoration Program
PCB	Polychlorinated Biphenyl
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
RRPH	Residual Range Petroleum Hydrocarbons
SAP	Sampling and Analysis Plan
SVOC	Semivolatile Organic Compound
TPH	Total Petroleum Hydrocarbon
VOC	Volatile Organic Compound
WACS	White Alice Communications Systems

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1.0 INTRODUCTION

This report describes the IRAs conducted at the Cape Lisburne radar installation during September 1994, May 1995, June 1995, and August 1995. The activities conducted include the excavation and containment of drums, soil, and liquids from the Buried Drum Area located within the Landfill and Waste Accumulation Area, site LF01, and the construction of a water collection and treatment system at Spill/Leak #3, site ST07.

The IRAs at the sites were conducted in accordance with the Work Plan and Sampling and Analysis Plan (SAP) for IRAs, Cape Lisburne Radar Station, Alaska, dated 25 August 1994 (U.S. Air Force 1994a), the Addendum to the IRA Plan, dated 06 December 1994 (U.S. Air Force 1994b), and the Cape Lisburne IRA Health and Safety Plan (U.S. Air Force 1994c).

Section 1.0 of this report presents the background and objectives of the two IRAs conducted at the Cape Lisburne installation. Section 2.0 describes the IRA at the Landfill and Waste Accumulation Area (LF01). Section 3.0 describes the IRA at Spill/Leak #3 (ST07). The conclusions and recommendations are presented in Section 4.0. Photographs taken during IRA activities are presented in Appendix A. Laboratory reports for all analytical data are presented in Appendix B.

1.1 BACKGROUND

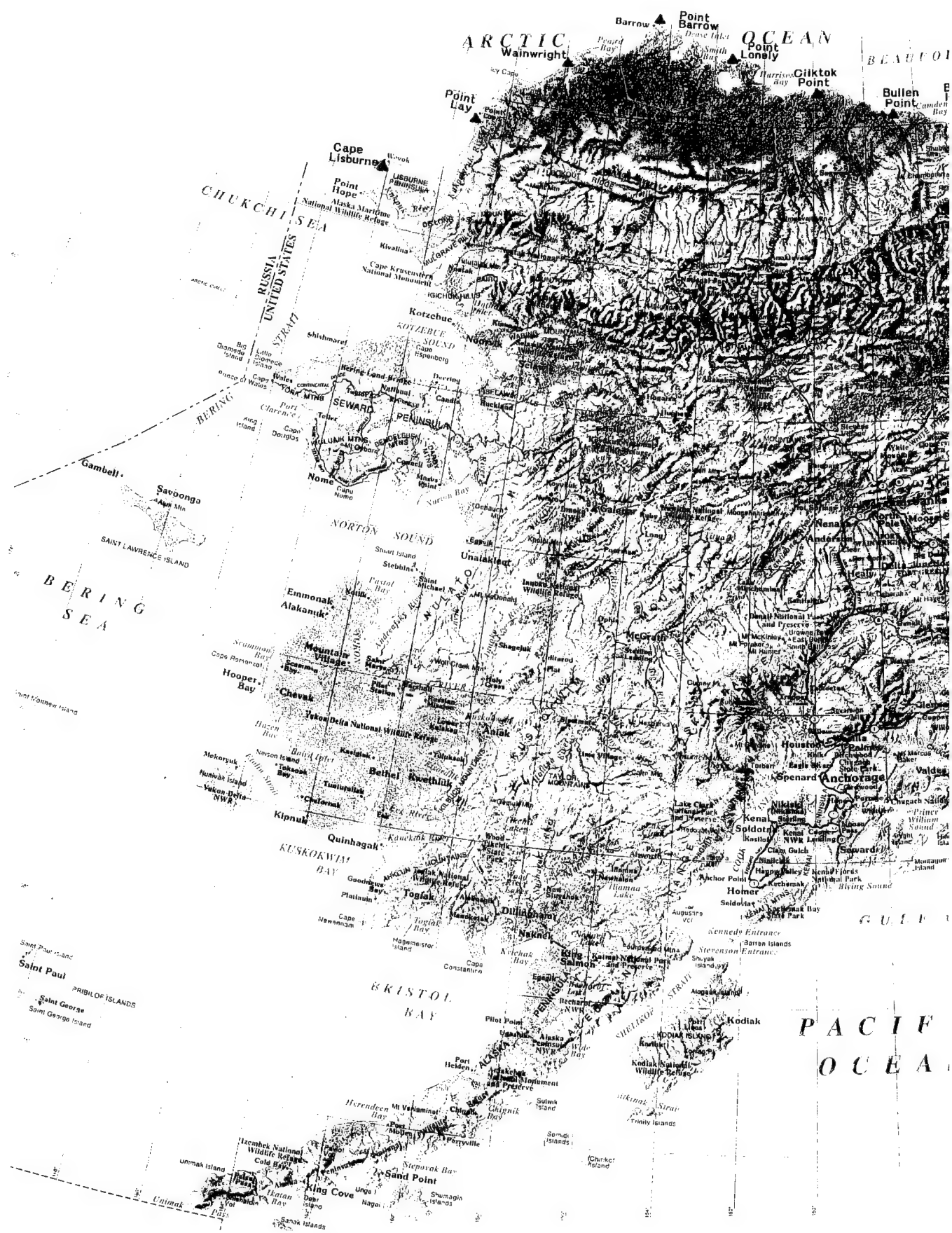
1.1.1 Installation Background

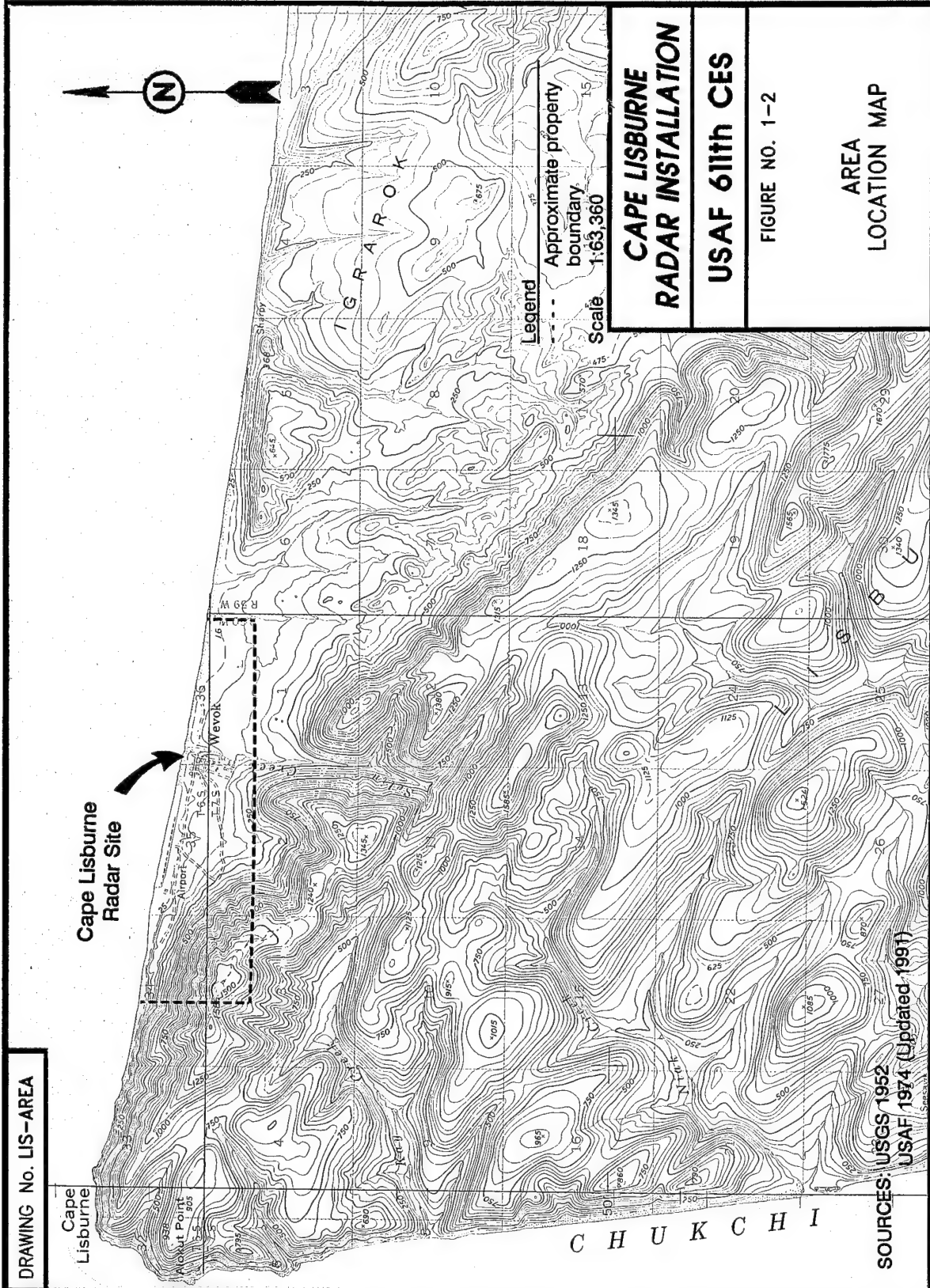
The Cape Lisburne radar installation consists of 1,125 acres of land along the shore of the Chukchi Sea and within the Alaska Maritime National Wildlife Refuge. It is located approximately 810 miles northwest of Anchorage and 570 miles northwest of Fairbanks. The general location of the Cape Lisburne radar installation is shown in Figure 1-1. An area location map is presented in Figure 1-2, and a site plan is provided in Figure 1-3.

The station is at latitude 68°52'N and longitude 166°15'W, and is accessible only by sea or air. Radar equipment is located at the Upper Camp, and support facilities for all station operations are located at the Lower Camp. The two camps are connected by a 3.9-mile gravel road. Point Hope, the nearest community, is located 35 miles to the southwest. There is no road connecting Point Hope and the Cape Lisburne installation.

The facility was one of the 31 original White Alice Communications Systems (WACS) built to establish an air defense system in Alaska. It was constructed in 1952 and 1953. The WACS began operation in August 1957. The WACS was deactivated in 1979 and replaced with a satellite earth terminal. Currently, four contract personnel at the station operate and maintain a Long Range Radar system located at the Upper Camp. Buildings at the Cape Lisburne installation are of traditional construction style. Support facilities in the Lower Camp include living quarters, a garage, a warehouse, inactive structures, and a 5,009 foot-long runway.

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DRAWING No. LIS-AREA

Cape Lisburne

Cape Lisburne Radar Site

Legend

--- Approximate property boundary
Scale 1:63,360

**CAPE LISBURNE
RADAR INSTALLATION**

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FIGURE NO. 1-2

AREA
LOCATION MAP

SOURCES: USGS 1952
USAF 1974 (Updated 1991)

CHUKCHI

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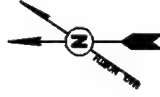
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Chukchi Sea

LANDFILL AND WASTE
ACCUMULATION AREA
(LF01)

SPILL/LEAK #3
(ST07)

ACTIVE
LANDFILL



400 0 400 800
SCALE IN FEET

LEGEND

- BUILDINGS, STRUCTURES
- ROADS
- TUNDRA
- SURFACE WATER
- RIVER, STREAM, OR CREEK
- SURFACE DRAINAGE
- IRA SITES

CAPE LISBURNE
RADAR INSTALLATION

USAF 611th CES

FIGURE NO. 1-3

CAPE LISBURNE
SITE PLAN

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General and installation-specific descriptions of the geology, climate, hydrology, biology, demographics, and industrial activities are presented in the Cape Lisburne Remedial Investigation/Feasibility Study (RI/FS) report (U.S. Air Force 1995a).

A variety of past activities at the station may have resulted in environmental contamination. The United States Air Force (Air Force) is investigating and remediating actual and potential sources of contamination through activities conducted under the IRP.

There are five sites and one area of concern (AOC) at the Cape Lisburne Long Range Radar Station where IRP investigations have been initiated. These areas were identified based on the literature search of previous IRP investigations, the pre-survey and reconnaissance trips, and interviews with station personnel. Sampling and analysis were conducted at these six areas during the summer of 1993 as described in the RI/FS SAP (U.S. Air Force 1993). The areas include five sites: the Landfill and Waste Accumulation Area (LF01), White Alice Site (SS03), Spill/Leak #3 (ST07), the Upper Camp Transformer Building (SS08), and the Lower Camp Transformer Buildings (SS09). In addition an AOC, the Water Gallery (AOC3), was investigated. Sampling and analyses identified chemicals of concern at these sites, and it was determined that IRAs should be conducted at two of the sites, the Landfill and Waste Accumulation Area (LF01) and Spill/Leak #3 (ST07). Following are descriptions of the two sites at the station where IRAs were conducted.

1.1.2 Landfill and Waste Accumulation Area (LF01) Background

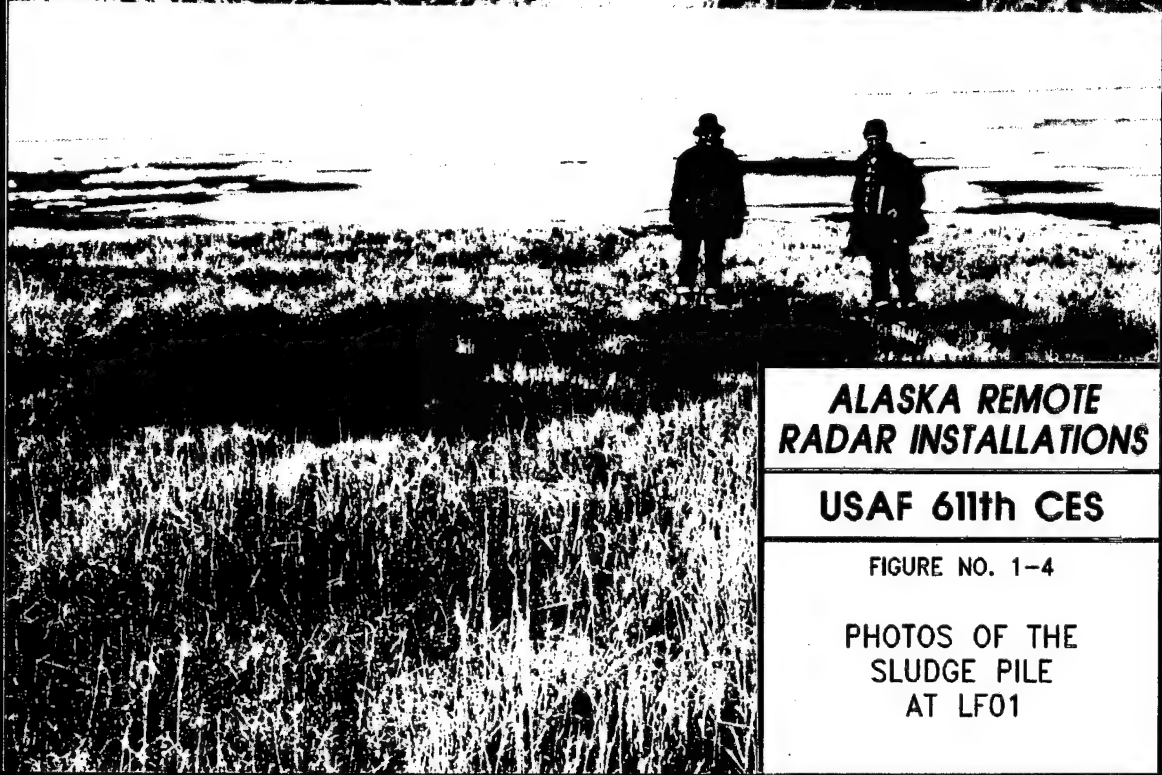
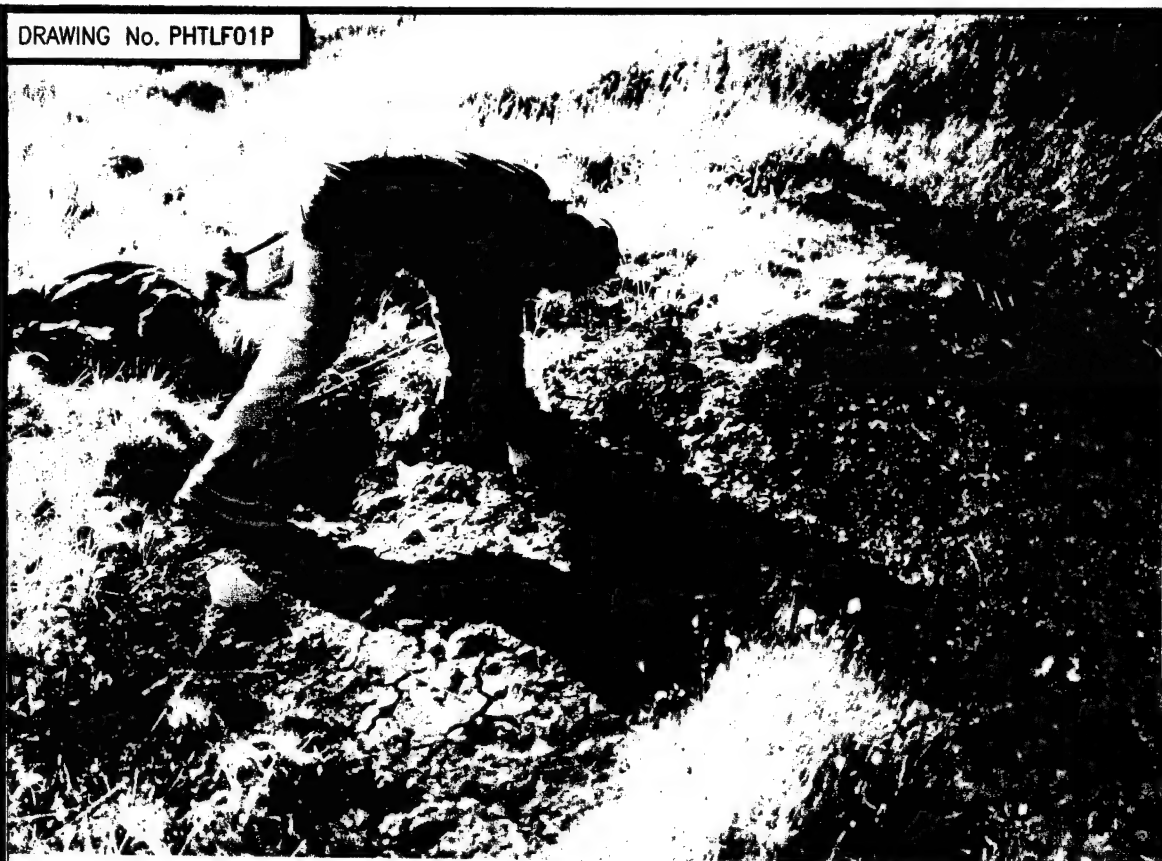
The Landfill and Waste Accumulation Area (LF01) site consists of three areas east of the main station and adjacent to the Chukchi Sea (Figure 1-3). These three areas, waste accumulation areas #1 and #2, and the landfill, are not clearly defined. The areas were used as landfills from 1952 to 1977. A general cleanup was performed at the site in 1977 and 1978. At that time, drums containing liquid wastes were shipped off site for disposal. Empty drums and other debris were reportedly buried in the accumulation areas and site landfill. A sludge pile covering approximately 200 square feet was identified during the 1993 RI on the west side of the site, approximately 50 feet north of the gravel road (Figure 1-4). Sampling and analysis conducted at the area detected residual range petroleum hydrocarbons (RRPH), benzene, toluene, ethylbenzene, and xylenes (BTEX), and volatile organic compounds (VOCs) in soil and water samples. Downgradient samples indicated low levels of contaminants were migrating from the sludge pile (Buried Drum Area).

1.1.3 Spill/Leak #3 (ST07) Background

The Spill/Leak #3 (ST07) site is located in the area of the installation diesel tanks, adjacent to the Arctic Ocean and the east end of the airstrip (Figure 1-3). In August 1992 site personnel informed the Alaska Department of Environmental Conservation (ADEC) that diesel fuel had been observed seeping from the north hillside, adjacent to and downgradient of the two station diesel tanks. Test pits were dug and approximately 25 gallons of fuel were collected. Leak tests were conducted and site personnel could not determine the source of the leak (ADEC 1992). Visual observation at this location in 1993 during RI sampling activities showed a few gallons of diesel product in an approximately 2-foot by 5-foot polyethylene plastic-lined catchment area located

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**ALASKA REMOTE
RADAR INSTALLATIONS**

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FIGURE NO. 1-4

PHOTOS OF THE
SLUDGE PILE
AT LF01

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at the base of the hillside north of the diesel tanks (Figure 1-5). Sampling and analysis conducted during the 1993 investigations detected significant concentrations of diesel range petroleum hydrocarbons (DRPH), gasoline range petroleum hydrocarbons (GRPH), RRPB, BTEX, VOCs, and semivolatile organic compounds (SVOCs) in soil at this site.

1.2 PROJECT OBJECTIVES

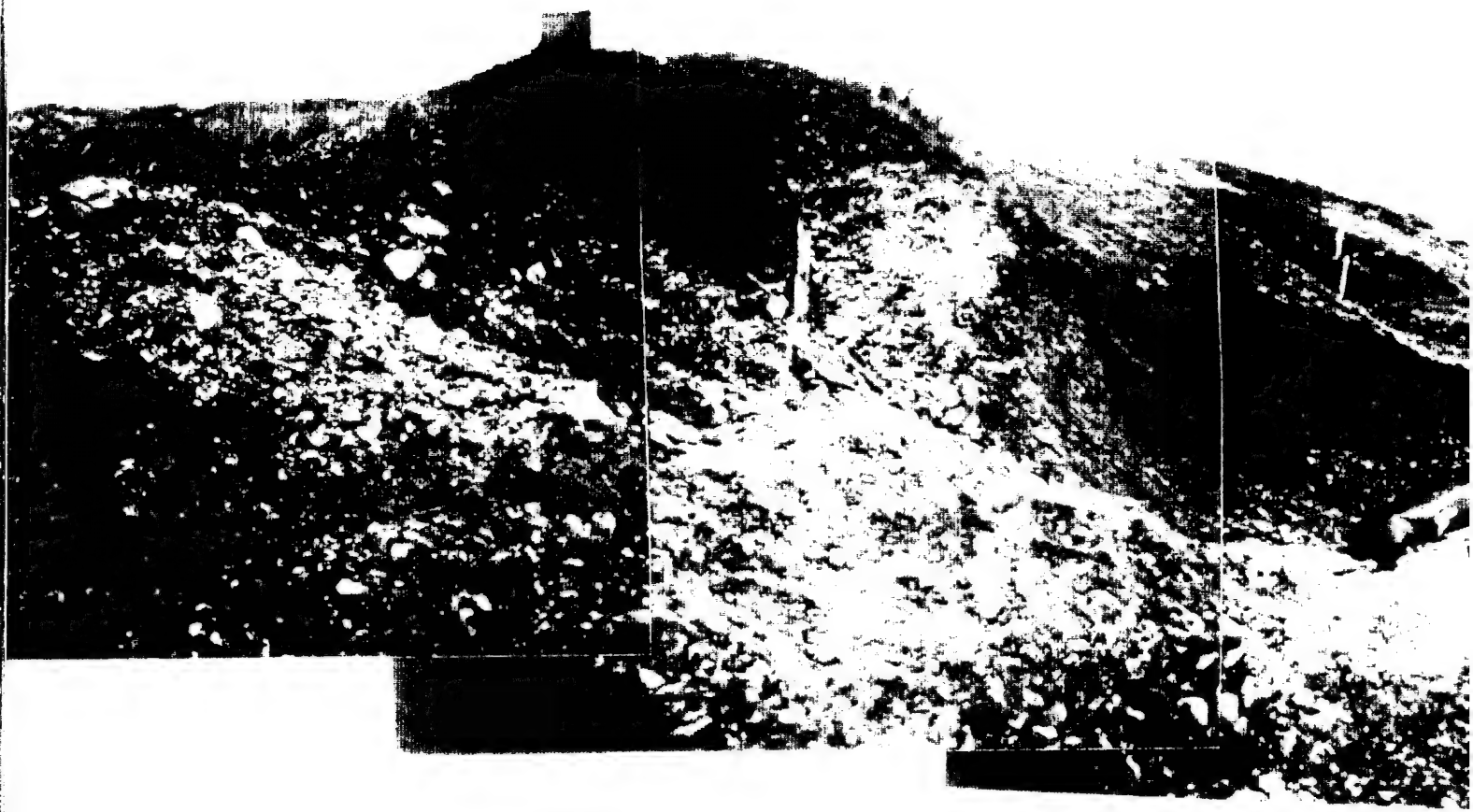
The objectives of this project were to remove and/or control the source contamination at portions of two sites through IRAs. These IRA sites were the Landfill and Waste Accumulation Area (LF01) and the Spill/Leak #3 (ST07).

The objective of the IRA at the Landfill and Waste Accumulation Area (LF01) site was to remove the buried drums of liquid and contaminated surface and subsurface soil to prevent the release and migration of contaminants from the site. The objective of the IRA at the Spill/Leak #3 (ST07) site was to collect any diesel product migrating from the site and to treat active layer water from the site that may contain dissolved constituents of diesel.

Two remediation activities were implemented as interim actions to prevent the migration of contaminants from the sites; they were not designed to be final cleanup actions at the sites. The remedial actions recommended for cleanup at these sites are reported in the Cape Lisburne RI/FS report (U.S. Air Force 1995a). Additional RI sampling was conducted in conjunction with IRA activities to characterize further the extent of contamination at the five sites at the installation. Results of these RI samples and previous RI sampling are provided in the RI/FS report.

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**ALASKA REMOTE
RADAR INSTALLATIONS**

USAF 611th CES

FIGURE NO 1-5

PHOTO OF SPILL/LEAK
#3 SITE

2.0 INTERIM REMEDIAL ACTION AT THE LANDFILL AND WASTE ACCUMULATION AREA, SITE LF01

An IRA was initiated in September 1994 at the LF01 site to remove what appeared to be a sludge pile/contaminated soils source area. The objective was to remove the source area to prevent contaminant migration downgradient into the natural tundra drainage towards the Chukchi Sea. Observations made during the 1993 RI conducted at the Cape Lisburne installation indicated that the sludge pile area was approximately 200 square feet and extended to a depth of as much as one foot. Contaminated soils in this area were excavated and placed in Department of Transportation approved containers during the September 1994 IRA for later disposal.

During hand excavation in September 1994 at the Sludge Pile, excavated areas filled with water and a thin layer of free-floating oily product. These organic liquids covered the vegetation they encountered, leaving a dark, saturated, peaty material. As the shallow excavation continued, six semi-crushed drums were exposed. After six cubic yards of contaminated soils had been removed and containerized, a geophysical survey was conducted using a metal detector. The survey indicated the presence of between 20 and 30 buried metal objects, presumably drums, in the immediate area. It became apparent that the source of black surface sludge was liquids that had leaked from the buried drums and floated to the surface during the seasonal periods when the ground was saturated with water. Henceforth, the sludge pile is referred to as the Buried Drum Area.

A continuation of the IRA was scheduled to remove the buried drums prior to the spring thaw, after which surface and active layer water would be likely to fill any excavation. Additionally, it was determined that the operation of heavy equipment while the ground was still frozen would do the least harm to the surrounding tundra. The IRA was initiated on 01 May 1995.

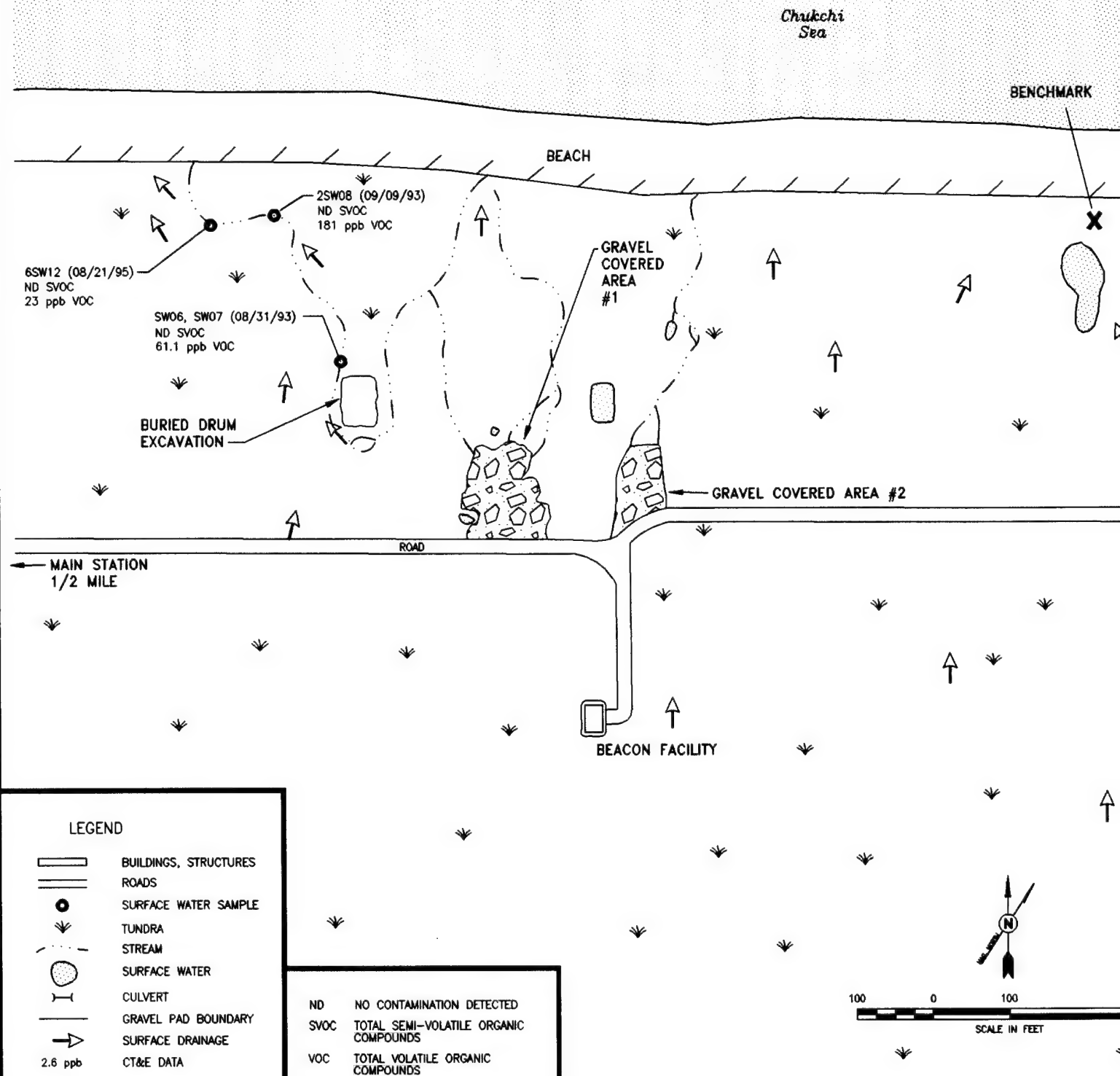
The following are descriptions of the excavation (Section 2.1), the containment cell (Section 2.2), and sampling and analyses (Section 2.3) associated with the contaminated materials removed during the May 1995 IRA at the site. A discussion of storage and disposition of waste materials is presented in Section 2.4. Locations of the Buried Drum (excavation) Area and containment cell where contaminated soils are temporarily stored are shown on Figure 2-1.

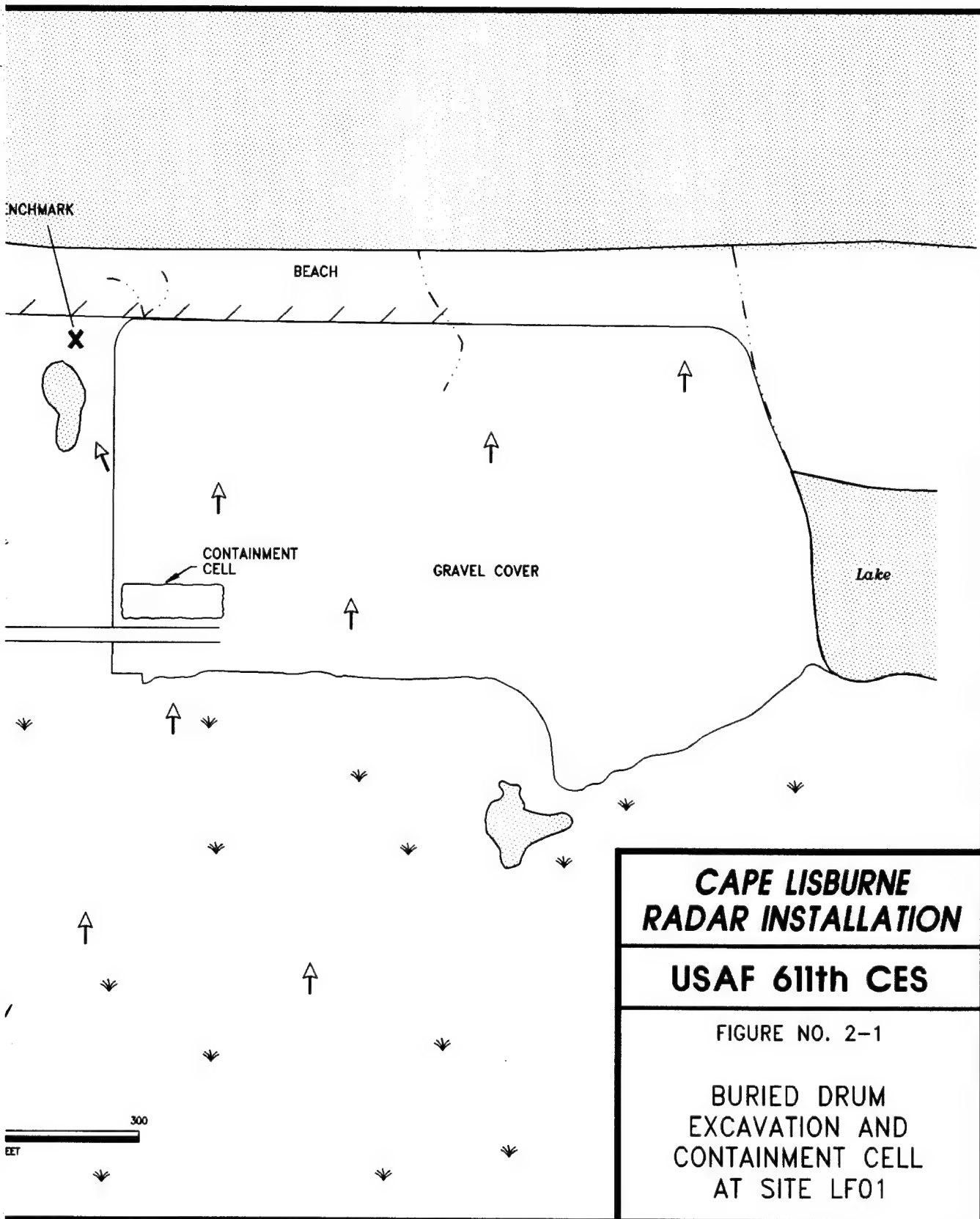
2.1 EXCAVATION

The geophysical survey conducted in September 1994 indicated that buried drums were located beneath an area of approximately 25 feet by 35 feet (Photograph 1, Appendix A). On 03 May 1995 the excavation of the buried drums was initiated using the ripper on a D8 bulldozer to loosen the frozen soil and drums. As drums were exposed, any liquids present in the partially crushed and/or ripped drums were transferred into new drums using long-handled scoops. The loosened soils and drums were pushed up into piles and transferred to a lined containment cell (described in Section 2.2) using a large front loader (Photographs 2 through 9). A metal detector was used during excavation to assist in locating buried drums and determining the direction and depth of further excavation. Clearly defining buried drums and contaminated soils to be excavated, in order to minimize the volume of excavated materials, was greatly complicated by

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the presence of buried metallic debris other than steel drums. On 07 May 1995 the excavation of drums was completed.

Approximately 100 drums were excavated over a period of five days. The buried drums had been stacked in clusters which accounts for the increase to approximately 100 drums excavated from the early estimate of 20 to 30 drums indicated by the geophysical survey. It was estimated that 50 of these drums were full of liquids and the rest were empty, full of ice, or contained ice and product. Approximately 450 gallons of liquids were recovered during the excavation. The majority of liquids appeared to be used motor oils; however, the contents of drums varied from heavy lubricating greases to almost clear liquids that may have been solvents. Liquids that could not be recovered and containerized in new drums were scooped up with soil using the heavy equipment and transported to the containment cell. When it appeared that the boundaries of the buried drums had been reached, the bottom of the pit was scraped down to frozen ground and all soils, liquids, and drums were removed. The completed excavation measured approximately 21 feet by 66 feet, with a maximum depth of approximately 6 feet. A drawing of the completed excavation is shown on Figure 2-2 and pictures of the excavation are shown in photographs 10 through 12.

Twelve soil samples were collected from the bottom and sides of the excavation (Photographs 11 and 12). All samples were analyzed for total petroleum hydrocarbons (TPHs) using field analytical methods. Three of the samples were also submitted to the laboratory for chemical analyses. Sample locations and analytical results are discussed in Section 2.3.

The liquids recovered during excavation were transferred into 55-gallon polyethylene drums suitable for shipping off site. Six drums of liquid, approximately 300 gallons, were labeled and sampled, and are temporarily stored in a vacant building at the installation. Approximately 150 gallons of sludge, water, and ice recovered during excavation activities were placed into the containment cell. Analytical results of the liquids sampled from the six drums are presented in Section 2.3.

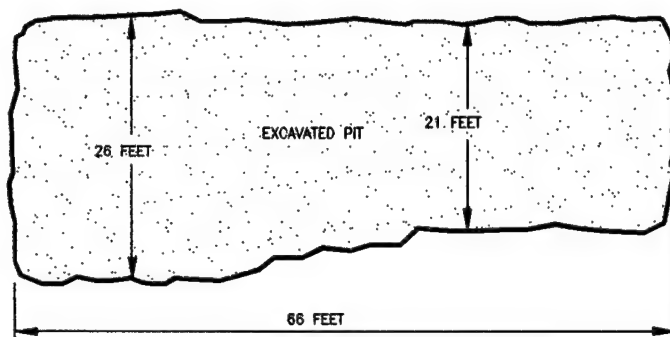
Once the results of field screening indicated that no significant levels of TPH remained in the soils of the excavated pit, 80 pounds of calcium peroxide were applied to the bottom and sidewalls of the pit (Photograph 10). This oxygenator was added to assist in the bioremediation of any residual contamination in soils in the bottom or sides of the excavation. Originally, the calcium peroxide was intended to be mixed with the excavation spoils to enhance bioremediation in the containment cell. However, the high contaminant concentrations in soils excavated eliminated bioremediation as an effective tool in the containment cell.

Backfilling of the pit was initiated on 08 May 1995 using a mixture of gravel and soil from a quarry site located in a hillside approximately one mile southwest of the main installation. Backfilled materials were compacted and leveled using the D8 bulldozer. The backfilling continued until the backfilled pit was approximately one foot higher in elevation than the original land surface (Photographs 13 and 14). Hand tools were used for the final leveling of the backfilled area, and on 11 May 1995 backfilling was completed.

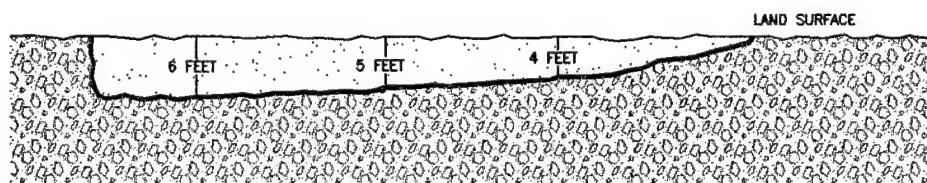
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TOP VIEW



SIDE VIEW



Vertical Exaggeration 3:1

**CAPE LISBURNE
RADAR INSTALLATION**

USAF 611th CES

FIGURE NO. 2-2

**EXCAVATION AT
BURIED DRUM AREA**

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During IRA activities in late June 1995, the backfilled area at the site was fertilized and seeded (see photograph 30). The area was fertilized with 20-20-10 (nitrogen-potassium-phosphorus) at a rate of approximately 350 pounds per acre. The tundra mix seed, 60 percent Bering hairgrass and 40 percent arctic fescue, was applied at a rate of approximately 40 pounds per acre. The fertilizer and seed were applied on 26 June 1995 using a broadcast spreader. By mid-August 1995 the seed had germinated, and the area had started to revegetate (see photograph 31).

2.2 CONTAINMENT CELL

Prior to initiating the excavation of the buried drums, a lined containment cell was constructed onsite at a gravel-covered area (closed landfill) located approximately 800 feet east of the Buried Drum Area (Figure 2-1). A D8 bulldozer and front loader were used to slope the gravel pad, excavate a sump area, and push up gravel berms around the sides and ends of the cell. The bottom of the containment cell was sloped at approximately a 1 to 100 (vertical to horizontal) ratio towards the sump on the long axis and at the same ratio perpendicular to the long axis centerline to ensure drainage of liquids into the sump. The containment cell and sump were lined with 23 mil black synthetic liner designated to perform in temperatures down to -65 degrees Fahrenheit (Photographs 15 through 18).

The final containment cell dimensions (inside) were approximately 20 feet by 105 feet. The length of the cell was extended from the original 70 feet to 105 feet to hold the additional volume of excavated materials (Photographs 19 and 20). Once the excavation was complete, the top of the excavated materials placed in the cell was leveled using the bucket of an excavator. Drums on the top surface of the contaminant cell soils were crushed to prevent protrusions of metal and potential tears in the cover of the cell. In addition, used carpet was placed over the top of the materials in the cell to reduce the potential for sharp objects to cut the top cover (Photograph 21). The top cover of the cell measured 40 feet by 120 feet and consisted of 23 mil black synthetic liner secured with gravel on the sides and ends. Excess cover material, approximately five feet on each side of the cell, was folded into the outside of the berm and covered with gravel. The sump, or west end of the cell, was secured with logs and a minimal gravel berm to facilitate access to the sump area.

Prior to closing the sump end of the cell, an attempt was made to collect the oily floating product that had drained into the sump; however, the product was only approximately an eighth of an inch thick and skimming was not successful. Prior to closing the cell, snow and ice excavated with the contaminated soils had melted, and water had collected in the sump to a depth of approximately six inches. Surface water from areas upgradient of the containment cell had seeped below the sump liner and was filling the excavated sump area. A pump was used to transfer the surface water from beneath the sump liner to the lined sump area (Photograph 22). The added weight and depth of the water in the sump prevented surface or active layer water from accumulating below the sump liner.

The lined gravel berms on the sump end of the cell are approximately five feet above the base of the sump, so liquids draining from the contained contaminated materials will back up into the main cell area, preventing the overflow of liquids from the sump.

A metal structural support beam was placed over the sump area to reduce the sag in the cell cover and to minimize the potential for water or snow to accumulate on the cover of the sump. Four aeration vents, constructed of PVC pipe and turbines, were placed in the sump end to provide transfer of air in and out of the cell and increase the evaporation of water that may collect in the sump (Photographs 23 and 24).

To minimize wind damage to the top cover of the cell, rope was criss-crossed along the length of the cell. Steel reinforcing bars were driven into the gravel just outside the lined cell to secure the rope. The entire containment cell was then circled with a rope fence to deter wildlife, such as caribou, from walking onto the top cover of the cell. Photographs 25 through 27 show pictures of the completed containment cell. Figure 2-3 shows the as-built containment cell.

Containment cell samples included five composite samples of the soil taken from three locations each along the length of the cell. The thin layer of floating product in the sump was also sampled. Sample locations and analytical results are discussed in Section 2.3.

The containment cell was inspected during late June 1995. The cover over the sump area of the cell was sagging due to the collapse of the metal structural support beam. The metal beam had buckled from the weight of rainwater that had accumulated on the cell cover. The cover on the sump was removed and three drums of liquid, a combination of free product and water, were removed from the sump of the cell. The depth of the free product on the sump was estimated to be 1/2 inch over approximately two feet of water.

The free product and water removed from the sump were sampled on 26 June 1995. The three drums of liquid are stored onsite with the six drums of liquid recovered during excavation activities. Analytical results for the free product and water samples are presented in Section 2.3

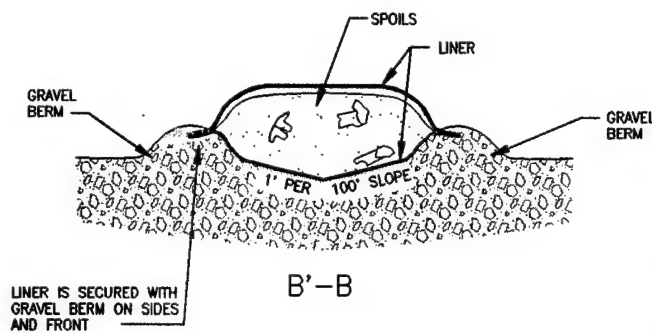
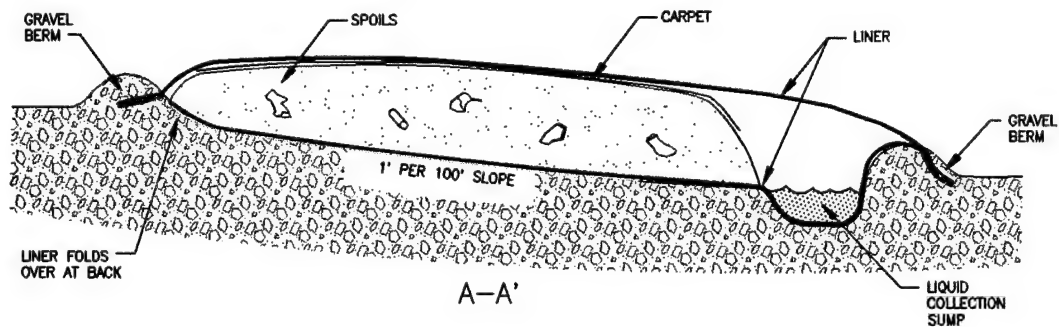
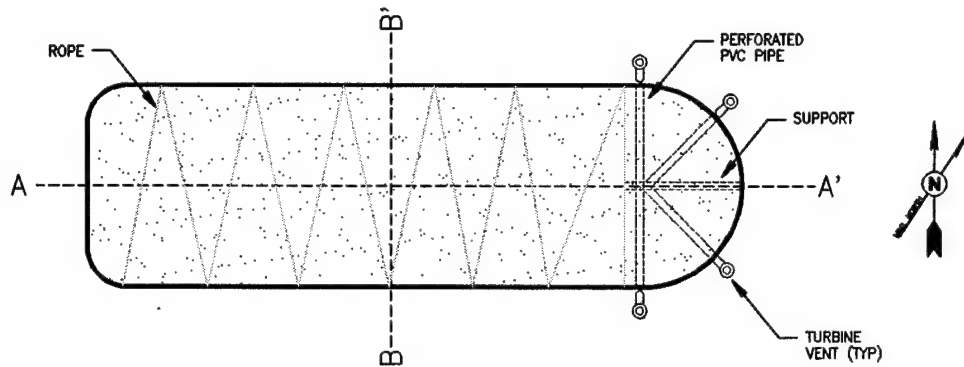
Large logs (driftwood) were used to build a new support for the cover over the sump area of the cell. One large log (approximately 12 inches in diameter) was used as the main support beam and cross beams, logs of approximately five-inches in diameter, were placed from the main beam to the sides of the sump area. A secondary liner cover was placed over the log supports, and the main (original) liner was placed over the sump. The edges of the liner were secured with gravel, and the ropes that cross-cross over the top of the cell cover were tightened. The work on the containment cell was completed on 28 June 1995.

Thawing and settling of the material in the containment cell, combined with high winds, caused wind damage to the top liner of the containment cell during late July 1995. Sufficient slack had accumulated in the top cover to cause flapping, eventually tearing the top liner. On 17 August 1995, a crew mobilized to Cape Lisburne to replace the top liner.

Repair of the top liner consisted of removing the old liner, removing sharp objects from the surface of the soil pile, pumping liquids out of the sump area of the cell, and installing a new 30 mil synthetic liner. To prevent liner flapping and wind damage, 1,500 sandbags were placed around and across the top of the new liner.

DRAWING No. SPOILS22

TOP VIEW



Vertical Exaggeration 3:1

**CAPE LISBURN
RADAR INSTALLATION**

USAF 611th CES

FIGURE NO. 2-3

**AS BUILT
CONTAINMENT CELL
(MAY - AUGUST 1995)**

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Prior to installation of the new top liner, liquids from the sump area of the cell were pumped into 55-gallon drums. Ten drums of liquid were removed from the sump of the cell. The liquid removed was a mixture of oil and water phase, and it was estimated that 150 gallons (three drums) of floating oil product and 350 gallons (seven drums) of water phase liquids were removed.

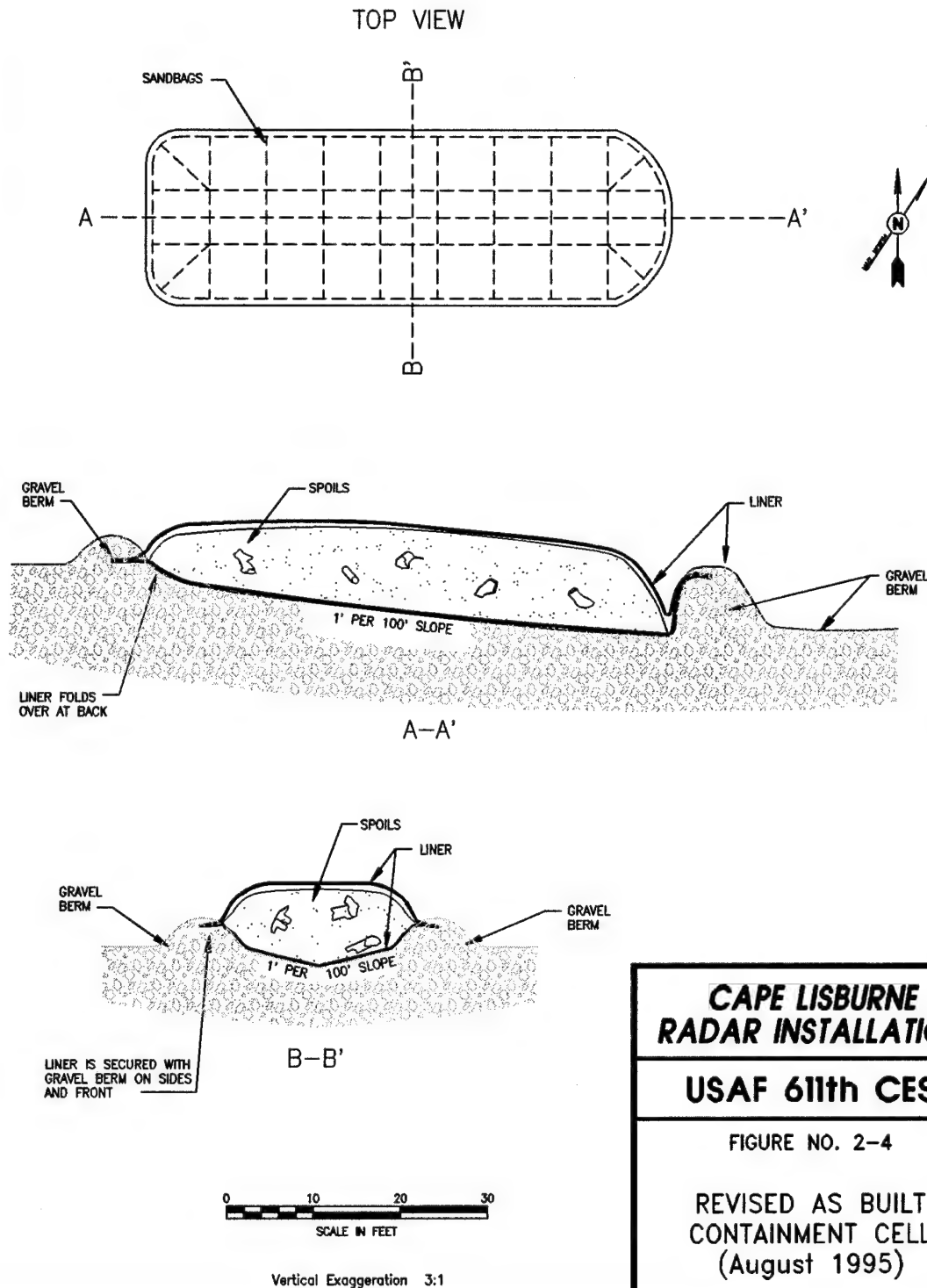
As the sump was pumped, active layer water entered the subsurface depression beneath the sump liner and pushed the liner upward. As it appeared most of the liquids had drained from the soil pile, it was determined that the sump area was no longer needed as part of the containment cell. The bottom liner on the sump (east) end of the cell was freed from the gravel berm and pulled to the west approximately ten feet to the area of the cell containing soil and drums. Liquids beneath the liner consisted of water and a floating oil layer approximately one-eighth of an inch thick. Apparently a hole in the sump liner had allowed a small volume of oil to leak onto the water in the unlined sump depression. The oil and water were pumped from the sump depression and containerized in 55-gallon drums. A total of six drums, approximately 300 gallons, of liquid was removed from the sump depression. It was estimated that the liquids removed consisted of 20 gallons of oil phase and 280 gallons of water phase liquids. When all liquids were removed, sorbent pads were placed in the sump depression to collect any residual oil (see photographs 32 and 33). The east gravel berm was then pushed to the west approximately ten feet using a D7 caterpillar. The original bottom liner was secured over the berm with gravel (see photographs 34 through 36).

Prior to installation of the new top liner, six one-cubic yard containers of contaminated soil, hand excavated from the Sludge Pile/Buried Drum Area in September 1994, were emptied into the containment cell. The contaminated soils were from the same excavation as soils already within the containment cell. The new 30 mil top liner was installed over the containment cell and secured in place with sandbags (see photograph 36). The revised as built containment cell is presented in Figure 2-4.

It is not known whether removal of the sump area from the containment cell removed the portion of the bottom liner that was leaking; however, any residual oils are likely to remain bound to containment cell soils. If the bottom liner is leaking, the active layer water beneath the cell is likely to keep floating product in the liner of the cell. Permafrost contours roughly approximate the containment cell surface contours with its perimeter berm. Thus, any contamination below the liner should be held in the immediate vicinity of the containment cell. Upon remediation of the soils in the containment cell and removal of the containment cell bottom liner, the soils beneath the liner will require sampling and analysis to determine if the leak in the cell has caused any significant contamination. Based on visual observations, the amount of soil that may be affected is minimal compared to the volume of soil within the containment cell that requires remediation. It should also be noted that the containment cell is constructed on top of a closed landfill, and soils potentially impacted do not include any tundra or undisturbed areas.

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DRAWING No. SPOILS24



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TABLE 2-1. SUMMARY OF SAMPLING AT LANDFILL AND WASTE ACCUMULATION AREA

DATE	DESCRIPTION OF SAMPLING	SAMPLE NUMBERS*	REFERENCE
EXCAVATION AREA SAMPLING			
August-September 1993	RI sampling of surface water from areas downgradient of Buried Drum Area	SW06, SW07 and 2SW08	Table 2-5
September 1994	Composite soil sample of six cubic yards of excavated soil	3W04	Table 2-2
May 1994	TPH screening on 12 soil samples from bottom and sidewalls of excavation	4S34 through 4S45	Table 2-3
	3 of 12 TPH screening soil samples submitted for laboratory analyses	4S35-2, 4S40-5, and 4S44-4	Table 2-4
	Composite samples of drummed liquids collected during excavation	FP-1 through FP-6	Table 2-6
August 1995	Surface water sample from area downgradient of Buried Drum Area	6SW12	Table 2-5
CONTAINMENT CELL SAMPLING			
May 1995	Five composite samples of soils in containment cell	4S46 through 4S50	Table 2-7
	Sump liquid from containment cell sump	FP-7 (oil phase)	Table 2-6
June 1995	Sump liquids from containment cell sump	5FP08 (oil phase) and 5FP09 (water phase)	Table 2-6

* Sample Identification Numbers are preceded with LIS or LIZ for Cape Lisburne and LF01 for the site number. SW = surface water; W = waste; S = soil; and FP = free product. Sample numbers ending with a "-x" indicate the sample was a subsurface soil sample collected at a depth of "x" feet below ground surface (e.g., 4S35-2 is soil sample number 35 collected at a depth of 2 feet below ground surface).

2.3 SAMPLING AND ANALYSES

This section describes sampling and analyses associated with the excavation area and containment cell at the LF01 site. A summary of the sampling conducted at each of these areas is presented in Table 2-1. The sampling and analyses conducted at these two areas are discussed separately in Sections 2.3.1 and 2.3.2.

2.3.1 Excavation Sampling and Analyses

During September 1994 IRA activities, a composite sample of the six cubic yards of excavated soils placed in one-cubic yard containers was collected during the shallow excavation at the

TABLE 2-2. CONTAINMENT CELL COMPOSITE SOIL SAMPLE RESULTS - SEPTEMBER 1994

SAMPLE: LIS-LF01-3W04 ANALYSIS: WASTE MANAGEMENT PROFILE		RESULTS/QC QUALIFIER (mg/L)
PARAMETER		
TCLP Metals		
Arsenic		0.005 U
Barium		1.7 D
Cadmium		0.50 U
Chromium		0.50 U
Lead		1.9 D
Mercury		0.002 U
Selenium		0.005 U
Silver		0.1 U
Pesticides (all)		0.02 U - 0.07 U
PCBs (all)		0.06 U
Volatiles (TCLP Methods)		
Carbon Tetrachloride		0.326 D
Chloroform		0.184 U
Trichloroethylene		0.577 D
Methylene Chloride		0.72 B
Toluene		1.35 B
Semivolatiles		
2-Methynapthalene		0.0038 J

QC Quality Control.
TCLP Toxicity Characteristic Leaching Procedures.
U Undetected, analyte was not detected at the reported quantitation limit.
D Secondary Dilution.
B Analyte was also detected in associated laboratory blank.
J Concentration reported is an estimate.

Buried Drum Area. This sample (LIS-LF01-3W04) was submitted for Waste Management Profile analyses. Results for this sample are presented in Table 2-2.

After excavation of the Buried Drum Area was completed in May 1995, twelve soil samples were taken from the base and sidewalls of the excavation and screened for TPH using a field test kit. The purpose of these samples was to confirm that all significant contamination had been removed from the excavation prior to backfilling. Additionally, three of the 12 samples were sent to the project's fixed-base laboratory in Anchorage, Alaska, where they were analyzed for VOCs, SVOCs, Polychlorinated Biphenyls (PCBs), GRPH, DRPH, and RRPB.

The field TPH analytical results for the 12 soil samples collected from the excavation area in May 1995 (sample LF01-4S34 through 4S45) are presented in Table 2-3. Table 2-4 presents the results of analyses on three of these same samples (replicate samples), LF01-4S35, 4S40, and 4S44, analyzed by the laboratory in Anchorage. Sample locations are shown on Figure 2-5.

During the August and September 1993 RI activities, surface water samples were collected from the drainage pathways downgradient of the Buried Drum Area. The water samples were SW06/SW07 (duplicate samples) and 2SW08. Total VOCs were detected in these samples at concentrations of 181 and 80.3 $\mu\text{g/L}$, respectively. (Total VOCs values are the sum of all VOCs detected in each sample). The same drainage pathway was sampled after removal of the surface sludge and buried drums from the excavation area (sample 6SW12). This post-IRA sample was collected on 21 August 1995. The total of VOCs detected was 23 $\mu\text{g/L}$. This indicates the surface water quality has improved in the drainage pathway. The drainage pathway during the August 1995 sampling was almost stagnant, and the VOCs detected may result from residual contaminants in the soil/sediments of the drainage pathway. The leaking drums and surface sludge have been removed from the site, so the water quality is expected to improve over time in the drainage pathway. Table 2-5 presents the compounds detected in the VOC analyses (8260) of these three surface water samples. Locations of these samples are presented on Figure 2-1.

Composite samples from each of the six drums of liquid collected during May 1995 excavation activities were sent to the Anchorage laboratory and submitted for Waste Management Profile analyses (samples LF01-FP1 through FP6). Results of these analyses are presented in Table 2-6.

2.3.2 Containment Cell Sampling and Analyses

Once all excavated materials had been placed into the containment cell, five composite samples of the soils in the cell were collected. Each of the five samples was a composite of soils collected from the two sides and top of the soil pile. Figure 2-6 shows the locations of the materials in the cell that were composited into each of the five samples in May 1995 (samples LF01-4S46 through 4S50).

The five composite soil samples were analyzed by the Anchorage laboratory for VOCs, SVOCs, PCBs, GRPH, DRPH, and RRPB. Analytical results are presented in Table 2-7.

The oil phase liquids in the containment cell sump were sampled during May 1994. The analytical results for this sample (LF01-FP7) are presented in Table 2-6.

During June 1995 three 55-gallon drums of liquid, a mixture of free product and water, were collected from the sump of the containment cell. A water sample (LF01-5FP08) and a free product sample (LF01-5FP09) were collected at this time. These samples underwent Waste Management Profile analyses. Results are presented in Table 2-6.

2.4 STORAGE AND DISPOSITION OF WASTE MATERIALS

The volume of contaminated soils within the containment cell is estimated at 186 cubic yards. Six cubic yards of contaminated soils removed from the surface of the Buried Drum Area (Sludge Pile) during the September 1994, and previously stored onsite, were put with containment cell soils in August 1995. In addition, approximately 25 gallons of soil are stored on site in a 55-gallon drum, the result of investigation-derived waste from the 1993 RI. Twenty-five drums of liquid were collected during IRA activities. One drum of spent activated carbon that was used to treat water from the decontamination pad is also stored with these drums. A summary of the waste stored onsite including media, location, volume, and associated sample numbers is presented in Table 2-8.

TABLE 2-3. EXCAVATION SAMPLES - FIELD TPH SCREENING RESULTS - MAY 1995

SAMPLE	TPH (mg/kg)
LIZ-LF01-4S34	50
LIZ-LF01-4S35*	10
LIZ-LF01-4S36	50
LIZ-LF01-4S37	50
LIZ-LF01-4S38	50
LIZ-LF01-4S39	<10
LIZ-LF01-4S40*	50
LIZ-LF01-4S41	<10
LIZ-LF01-4S42	100
LIZ-LF01-4S43	<10
LIZ-LF01-4S44*	100
LIZ-LF01-4S45	50

* Sample was also analyzed by laboratory. Laboratory results are presented in Table 2-4.

TABLE 2-4. EXCAVATION SOIL SAMPLES - LABORATORY ANALYTICAL RESULTS - MAY 1995

Installation: Cape Lisburne Site: Landfill and Waste Accumulation Area (LF01)		Matrix: Soil Units: mg/kg						
Parameters	Detection Limits	Quantitation Limits	Background Levels	Environmental Samples			Field Blank	Lab Blanks
				4S35-2	4S40-5	4S44-4	4TB01	
Laboratory Sample ID Numbers				1850-2	1850-3	1850-4	1850-1	1850
ANALYSES	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	µg/L	mg/kg
DRPH	4.00	4.00	<60 ^b <150 ^b	441	2,512	1,780	NA	<4.00
GRPH	0.40	0.40	<2 ^j <6 ^j	4.88	50.9	8.64	NA	<1.00
RRPH (Approx.)	4.00	4.00	<120 <300	2,000	5,030	4,240	NA	<100
VOCs 8260								
n-Butylbenzene	0.02	0.10	<0.025-<0.160	<0.10	0.636	<0.10	<1	<0.05
sec-Butylbenzene	0.02	0.10	<0.025-<0.160	<0.10	0.168	<0.10	<1	<0.05
Carbon Tetrachloride	0.02	0.10	<0.025-<0.160	0.11	17.3	<0.10	<1	<0.05
Chloroform	0.02	0.10	<0.025-<0.160	<0.10	0.796	<0.10	<1	<0.05
Ethylbenzene	0.02	0.10	<0.025-<0.160	<0.10	2.19	<0.10	<1	<0.05
Isopropylbenzene	0.02	0.10	<0.025-<0.160	<0.10	0.242	<0.10	<1	<0.05
p-Isopropyltoluene	0.02	0.10	<0.025-<0.160	<0.10	0.178	<0.10	<1	<0.05
Naphthalene	0.02	0.10	<0.025-<0.160	<0.10	0.185	0.125	<1	<0.05
n-Propylbenzene	0.02	0.10	<0.025-<0.160	<0.10	0.758	<0.10	<1	<0.05
Toluene	0.02	0.10	<0.025-<0.160	<0.10	3.11	8.45	<1	<0.05
Trichloroethene	0.02	0.10	<0.025-<0.160	<0.10	15.3	0.175	<1	<0.05

Commercial Testing and Engineering Laboratory Data.

Friedman and Bruya Laboratory Data.

Not analyzed.

Result is an estimate.

The action levels for DRPH and RRPH are based on conversations with ADEC; final action levels have not yet been determined.

DRPH and GRPH concentrations reported for these samples are equivalent to diesel and gasoline range organics (DRO and GRO) as defined by ADEC.

TABLE 2-4. EXCAVATION SOIL SAMPLES - LABORATORY ANALYTICAL RESULTS - MAY 1995 (CONTINUED)

Installation: Cape Lisburne			Matrix: Soil						
Site: Landfill and Waste Accumulation Area (LF01)			Units: mg/kg						
Parameters	Detection Limits	Quantitation Limits	Background Levels	Environmental Samples			Field Blank	Lab Blanks	
				4S35-2	4S40-5	4S44-4			
Laboratory Sample ID Numbers				1850-2	1850-3	1850-4	1850-1	1850	1850
ANALYSES	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	µg/L	µg/L	mg/kg
VOCs 8260 (Continued)									
1,2,4-Trimethylbenzene	0.02	0.10	<0.025-<0.16	<0.10	6.89	0.486	<1	<1	<0.050
1,3,5-Trimethylbenzene	0.02	0.10	<0.025-<0.16	<0.10	2.04	<0.100	<1	<1	<0.050
Xylenes (Total)	0.04	0.20	<0.050-<0.32	<0.20	9.83	0.824	<2	<2	<0.100
SVOCs 8270									
2-Methylnaphthalene	0.20	0.353-5.26	<0.25-<4.23	<0.353	8.59	0.229J	NA	NA	<0.100
4-Methylphenol	0.20	0.353-5.26	<0.25-<4.23	<0.353	<5.26	2.16	NA	NA	<0.100
Naphthalene	0.20	0.353-5.26	<0.25-<4.23	<0.353	4.26J	<0.354	NA	NA	<0.100
Phenol	0.20	0.353-5.26	<0.25-<4.23	<0.353	<5.26	0.920	NA	NA	<0.100
PCBs									
Aroclor 1260 ^a	0.02	0.08	<0.02	<0.08	0.149	0.100	NA	<1	<0.02

□ NA
J N

Commercial Testing and Engineering Laboratory Data.

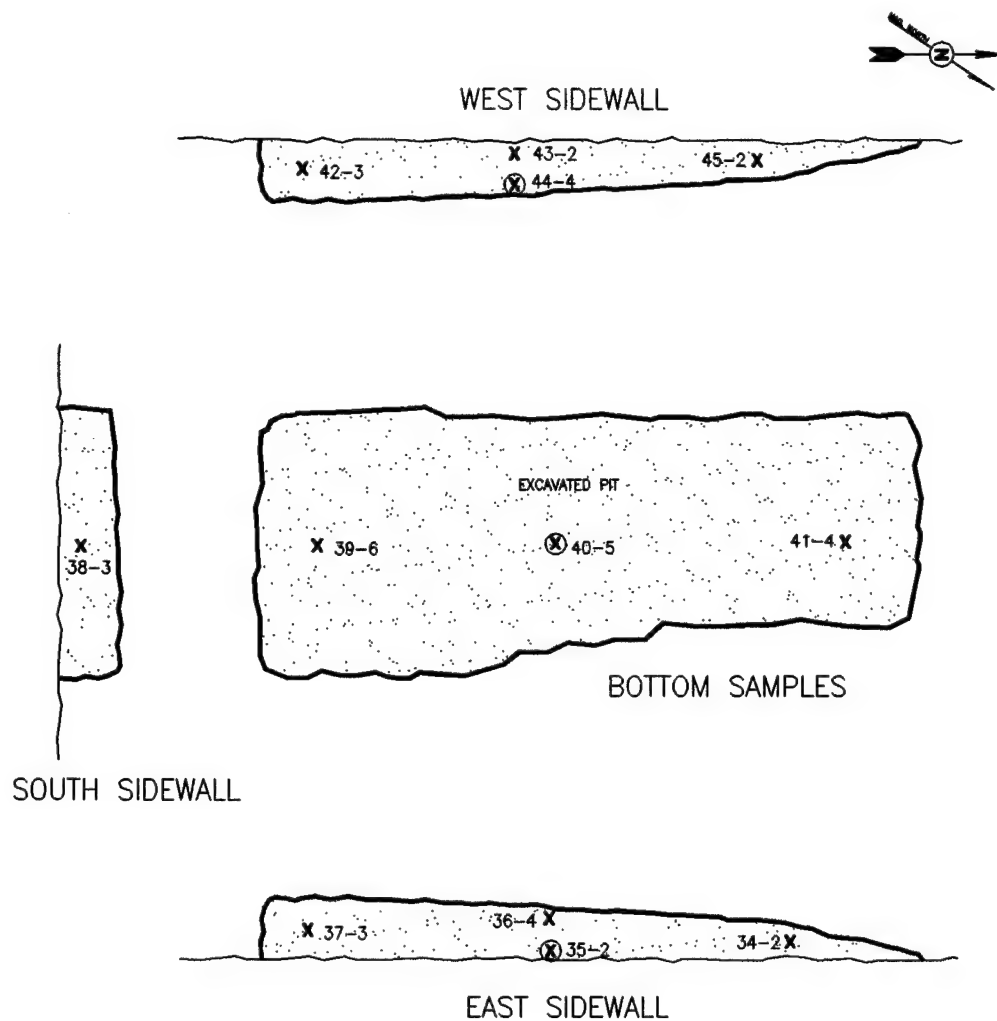
Not analyzed.

Result is an estimate.

The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification^a.

All other Aroclors were non detect.

DRAWING No. SPOILS31



**CAPE LISBURN
RADAR INSTALLATION**

USAF 611th CES

FIGURE NO. 2-5

**EXCAVATION PIT SOIL
SAMPLE LOCATIONS**

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TABLE 2-5. DRAINAGE PATHWAY SURFACE WATER ANALYTICAL DATA

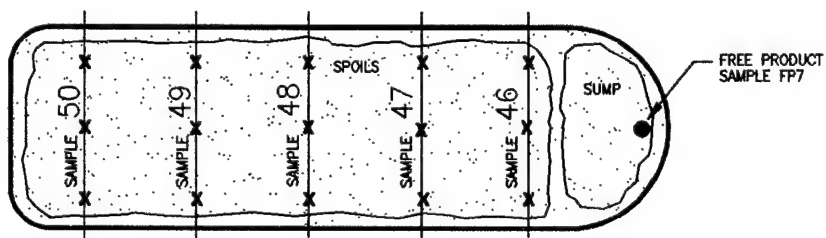
Installation: Cape Lisburne											
Site: Landfill and Waste Accumulation Area (LF01)											
Matrix: Surface Water											
Units: µg/L											
Parameters	Detection Limits	Quantitation Limits	Action Levels	Background Levels	Environmental Samples			Field Blanks			Lab Blanks
					2SW08	SW06 SW07	6SW12	AB01	2EB04	2TB04	
Laboratory Sample ID Numbers					4727-4 4729-1	4512-9 4514-5 4512-10 4514-16	3550-1	4512-3	1924 4727-10	4727-9	#6-91393 4727 4512 4729
Date Collected					09 Sept. 93	31 Aug. 93	21 Aug. 95				
ANALYSES	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
VOCs 8260											
Benzene	1	1-2.5	5	<1	1.2J	<1	<2.5	<1	<1J	<1J	<1
Carbon Tetrachloride	1	1-2.5	5	<1	89J	48	<2.5	<1	<1J	<1J	<1
Chloroform	1	1-2.5		<1	16J	4.8	6.2	<1J	<1J	<1J	<1
cis-1,2-Dichloroethene	1	1-2.5		<1	<1	1.5	2.8	<1	<1J	<1J	<1
Toluene	1	1-2.5	1,000	<1	9.6J	<1	<2.5	<1	<1J	<1J	<1
Trichloroethene	1	1-2.5	5	<1	62J	6.8	14	<1	<1J	<1J	<1
Xylenes (Total)	2	2-5	10,000	<2	3.3J	<2	<5	<2	<2J	<2J	<2
PCBs	0.2-1	1-2	0.5	<0.2-1	NA	<2J	<1				
SVOCs 8270	10	10-11		<10	<10	<11	<5	NA	NA	NA	<10

NA Not analyzed.
J Result is an estimate.

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DRAWING No. SPOILS32

TOP VIEW



LEGEND

X 1 OF 3 SAMPLE LOCATIONS FOR EACH COMPOSITE SAMPLE



V.E. 3:1

**CAPE LISBURNE
RADAR INSTALLATION**

USAF 611th CES

FIGURE NO. 2-6

**CONTAINMENT CELL
SAMPLE LOCATIONS**

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TABLE 2-6. CONTAINED LIQUIDS - WASTE MANAGEMENT PROFILE RESULTS

PARAMETER	UNITS	SAMPLE IDENTIFICATION									
		LIZ-LF01-FP1	LIZ-LF01-FP2	LIZ-LF01-FP3	LIZ-LF01-FP4	LIZ-LF01-FP5	LIZ-LF01-FP6	LIZ-LF01-FP7	LIS-LF01-5FP08	LIS-LF01-5FP09	
		Drummed Liquids (Oil Phase)									
TCLP Metals											
Arsenic	mg/L	0.21 U	0.22 U	0.22 U	0.20 U	0.22 U	0.24 U	0.21 U	0.050 U	0.20 U	
Barium	mg/L	900 D	810 D	1,700 D	1,300 D	1,200 D	710 D	74 D	2.4	200 D	
Cadmium	mg/L	0.10 U	0.11 U	0.11 U	0.10 U	0.11 U	0.12 U	0.1 U	0.40 U	0.10	
Chromium	mg/L	1.0 U	1.1 U	1.1 U	1.0 U	1.1 U	1.2 U	1.0 U	0.50 U	0.50	
Copper	mg/L	20 U	22 U	22 U	20 U	22 U	24 U	21 U	0.50 U	20 U	
Lead	mg/L	5.3 D	8.6 D	4.0	0.65 D	5.5 D	28	10 D	1.0 U	34 D	
Mercury	mg/L	0.10 U	0.11	0.10 U	0.10 U	0.10 U	0.12	0.10 U	0.050 U	0.10 U	
Nickel	mg/L	20 U	22 U	22 U	20 U	22 U	24 U	21 U	0.50 U	20 U	
Selenium	mg/L	0.21 U	0.22 U	0.22 U	0.20 U	0.22 U	0.24 U	0.21 U	0.050 U	0.20 U	
Silver	mg/L	--	--	--	--	--	--	--	1.0 U	0.080 U	
Zinc	mg/L	72 D	22 U	22 U	40 D	43 D	110 D	21 U	0.50 U	36	
Sulfides, Releasable	mg/kg	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
Phenols, Total	mg/kg	6.65	5.0 U	5.0 U	19	5.85	5.0 U	5.0 U	1.0 U	5.0 U	
Cyanide, Releasable	mg/kg	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
PCBs (Total)	mg/kg	4.00 U	2.00 U	4.00 U	4.00 U	7.00 U	4.00 U	9.54	0.02 U	5.00 U	
Volatiles											
Benzene	mg/L	3.70 U	72.0 U	4.30 U	4.00 U	42.0 U	232 D	7.60 U	0.100 U	0.100 U	
Carbon Tetrachloride	mg/L	14.4 D	72.0 U	4.30 U	4.00 U	42.0 U	92.0 U	553 D	0.996 D	3.37 D	
Chlorobenzene	mg/L	3.70 U	72.0 U	4.30 U	4.00 U	42.0 U	92.0 U	7.60 U	0.110 U	0.100 U	

D U Secondary dilution.

Undetected, analyte was not detected at the reported quantitation limit.

TABLE 2-6. CONTAINED LIQUIDS - WASTE MANAGEMENT PROFILE RESULTS (CONTINUED)

PARAMETER	UNITS	SAMPLE IDENTIFICATION									
		LIZ-LF01-FP1	LIZ-LF01-FP2	LIZ-LF01-FP3	LIZ-LF01-FP4	LIZ-LF01-FP5	LIZ-LF01-FP6	LIZ-LF01-FP7	LIS-LF01-5FP08	LIS-LF01-5FP09	
		Drummed Liquids (Oil Phase)									
Chloroform	mg/L	3.70 U	72.0 U	4.30 U	4.00 U	42.0 U	92.0 U	7.60 U	0.171 D	0.153 D	
1,4-Dichlorobenzene	mg/L	3.70 U	72.0 U	4.30 U	4.00 U	42.0 U	92.0 U	7.60 U	0.100 U	0.100 U	
1,2-Dichloroethane	mg/L	3.70 U	72.0 U	4.30 U	4.00 U	42.0 U	92.0 U	7.60 U	0.100 U	0.100 U	
1,1-Dichloroethene	mg/L	3.70 U	72.0 U	4.30 U	4.00 U	42.0 U	92.0 U	7.60 U	0.100 U	0.100 U	
Methyl Ethyl Ketone	mg/L	37.0 U	720 U	43.0 U	40.0 U	420 U	920 U	76.0 U	1.00 U	1.00 U	
Tetrachloroethene	mg/L	3.70 U	72.0 U	4.30 U	4.00 U	42.0 U	92.0 U	7.60 U	0.100 U	0.100 U	
Trichloroethene	mg/L	9.47 D	77,700 D	6.03 D	6.17 D	43,000 D	138,000 D	1,590 D	6.81 D	11.5 E	
Vinyl Chloride	mg/L	3.70 U	72.0 U	4.30 U	4.00 U	42.0 U	92.0 U	7.60 U	0.100 U	0.100 U	
Chloromethane	mg/L	3.70 U	72.0 U	4.30 U	4.00 U	42.0 U	92.0 U	7.60 U	0.100 U	0.100 U	
Bromomethane	mg/L	3.70 U	72.0 U	4.30 U	4.00 U	42.0 U	92.0 U	7.60 U	0.100 U	0.100 U	
Chloroethane	mg/L	3.70 U	72.0 U	4.30 U	4.00 U	42.0 U	92.0 U	7.60 U	0.100 U	0.100 U	
Methylene Chloride	mg/L	3.70 U	72.0 U	4.30 U	4.00 U	42.0 U	92.0 U	7.60 U	0.100 U	0.100 U	
Carbon Disulfide	mg/L	3.70 U	72.0 U	4.30 U	4.00 U	42.0 U	92.0 U	7.60 U	0.100 U	0.100 U	
1,1-Dichloroethane	mg/L	3.70 U	72.0 U	4.30 U	4.00 U	42.0 U	92.0 U	7.60 U	0.100 U	0.100 U	
1,2-Dichloroethene	mg/L	3.70 U	72.0 U	4.30 U	4.00 U	42.0 U	92.0 U	7.60 U	0.100 U	0.100 U	
1,1,1-Trichloroethane	mg/L	3.70 U	72.0 U	4.30 U	4.00 U	42.0 U	92.0 U	7.60 U	0.100 U	0.100 U	
Bromodichloroethane	mg/L	3.70 U	72.0 U	4.30 U	4.00 U	42.0 U	92.0 U	7.60 U	0.100 U	0.100 U	
1,2-Dichloropropane	mg/L	3.70 U	72.0 U	4.30 U	4.00 U	42.0 U	92.0 U	7.60 U	0.100 U	0.100 U	
cis-1,3-Dichloropropene	mg/L	3.70 U	72.0 U	4.30 U	4.00 U	42.0 U	92.0 U	7.60 U	0.100 U	0.100 U	
Bromoform	mg/L	3.70 U	72.0 U	4.30 U	4.00 U	42.0 U	92.0 U	7.60 U	0.100 U	0.100 U	

D Secondary dilution.

E Identifies compound whose concentration exceeded the calibration range of the instrument for that specific analysis.

U Undetected, analyte was not detected at the reported quantitation limit.

TABLE 2-6. CONTAINED LIQUIDS - WASTE MANAGEMENT PROFILE RESULTS (CONTINUED)

PARAMETER	UNITS	SAMPLE IDENTIFICATION									
		LIZ-LF01-FP1	LIZ-LF01-FP2	LIZ-LF01-FP3	LIZ-LF01-FP4	LIZ-LF01-FP5	LIZ-LF01-FP6	LIZ-LF01-FP7	LIS-LF01-5FP08	LIS-LF01-5FP09	
		Drummed Liquids (Oil Phase)									
Methyl Isobutyl Ketone	mg/L	3.70 U	720 U	43.0 U	40.0 U	420 U	920 U	76.0 U	1.00 U	1.00 U	
1,1,2,2-Tetrachloroethane	mg/L	3.70 U	72.0 U	4.30 U	4.00 U	42.0 U	92.0 U	7.60 U	0.100 U	0.100 U	
Toluene	mg/L	40.7 D	1,790 D	26.1 D	511 D	53.1 D	672 D	51.6 D	0.167 D	0.333 D	
Ethylbenzene	mg/L	20.5 D	72.0 U	15.5 D	5.74 D	42.0 U	92.0 U	41.2 D	0.100 U	0.108 D	
Styrene	mg/L	3.70 U	72.0 U	4.30 U	4.00 U	42.0 U	92.0 U	7.60 U	0.100 U	1.100 U	
Xylene (Total)	mg/L	154 D	154 D	107 D	41.1 D	42.0 U	396 D	232 D	0.124 D	0.532 D	
pH, Corrosivity	units	6.8	8.0	8.0	8.6	9.0	8.6	6.8	7.0	7.1	
degrees F, Flammability	deg.F	> 200	167	> 200	> 200	> 200	98	> 200	> 200	> 200	
Reactivity		NONREACT	NONREACT	NONREACT	NONREACT	NONREACT	NONREACT	NONREACT	NONREACT	NONREACT	
Boiling Point	deg.F	> 110	> 110	> 110	> 110	> 110	> 110	> 110	> 110	> 110	

D U
Secondary dilution.

Undetected, analyte was not detected at the reported quantitation limit.

TABLE 2-7. CONTAMINMENT CELL SOILS - ANALYTICAL RESULTS - MAY 1995

PARAMETER	UNITS	SAMPLE IDENTIFICATION					AVERAGE
		LIZ-LF01-4S46	LIZ-LF01-4S47	LIZ-LF01-4S48	LIZ-LF01-4S49	LIZ-LF01-4S50	
Percent Solids	%	48.0	58.2	42.0	60.1	63.6	54.38
Gasoline Range Organics	mg/kg	501 D	187 D	205 D	370 D	1020 D	456.6
Diesel Range Organics	mg/kg	118000 D	61200 D	98000 D	58500 D	56000 D	78,340
Residual Range Organics	mg/kg	163000 D	135000 D	174000 D	84700 D	87600 D	128,860
Volatile Organics 8260							
Benzene	mg/kg	2.36 D	0.459 D	1.42 D	2.85 D	6.80 U	2.78
n-Butylbenzene	mg/kg	0.100 U	3.20 D	1.00 U	2.85 D	6.80 U	2.79
sec-Butylbenzene	mg/kg	1.50 D	0.959 D	1.00 U	0.950 D	6.80 U	2.24
tert-Butylbenzene	mg/kg	0.177 D	0.078 D	1.00 U	0.070 U	6.80 U	1.63
Carbon Tetrachloride	mg/kg	245 D	4.29 D	104 D	216 D	3510 D	815.86
Chloroform	mg/kg	6.83 D	0.283 D	2.26 D	1.97 D	51.3 D	12.53
cis-1,2-Dichloroethene	mg/kg	0.231 D	0.080 U	1.00 U	0.070 U	6.80 U	1.64
Ethylbenzene	mg/kg	8.78 D	1.51 D	7.52 D	12.5 D	11.0 D	8.26
Isopropylbenzene	mg/kg	1.54 D	0.602 D	1.00 U	1.31 D	6.80 U	2.25
p-Isopropyltoluene	mg/kg	1.62 D	1.21 D	1.00 U	1.14 D	6.80 U	2.35
Naphthalene*	mg/kg	20.6 D	0.080 U	18.0 D	22.9 D	17.7 D	15.86
n-Propylbenzene	mg/kg	3.48 D	1.47 D	2.41 D	3.38 D	6.80 U	3.51
Tetrachloroethene	mg/kg	0.565 D	0.193 D	1.00 U	0.070 U	6.80 U	1.73
Toluene	mg/kg	27.4 D	31.9 D	24.4 D	34.1 D	31.2 D	29.8
1,1,1-Trichloroethane	mg/kg	6.62 D	0.080 U	1.00 U	0.070 U	6.80 U	2.91
1,1,2-Trichloroethane	mg/kg	0.526 D	0.080 U	1.00 U	0.070 U	6.80 U	1.70
Trichloroethene	mg/kg	512 D	5.63 D	74.7 D	65.6 D	900 D	311.59
1,2,4-Trimethylbenzene	mg/kg	25.1 D	10.7 D	21.1 D	24.9 D	6.80 U	17.72
1,3,5-Trimethylbenzene	mg/kg	0.100 U	4.00 D	5.92 D	0.070 U	6.80 U	3.38

TABLE 2-7. CONTAMINANT CELL SOILS - ANALYTICAL RESULTS - MAY 1995 (CONTINUED)

PARAMETER	UNITS	SAMPLE IDENTIFICATION					AVERAGE
		LIZ-LF01-4S46	LIZ-LF01-4S47	LIZ-LF01-4S48	LIZ-LF01-4S49	LIZ-LF01-4S50	
p+m-Xylene	mg/kg	29.7 D	6.58 D	24.6 D	39.2 D	34.6 D	26.94
o-Xylene	mg/kg	12.2 D	3.60 D	9.87 D	14.3 D	12.0 D	10.39
Semivolatile Organics 8270							
Naphthalene*	mg/kg	64.8 D	25.1 D	47.9 D	56.6 D	40.3 D	46.94
2-Methylnaphthalene	mg/kg	137 D	49.4 D	82.2 D	120 D	89.3 D	95.58
Fluorene	mg/kg	6.3 J	8.60 U	13.3 U	7.40 U	5.23 J	8.17 J
Phenanthrene	mg/kg	10.2 J	8.60 U	9.88 J	6.84 J	7.79 J	8.66
PCBs (Aroclor 1260)							
	mg/kg	4.86	2.10	3.58	0.375	0.708	2.32

D J U *

Secondary Dilution.
Concentration reported is an estimate.

Undetected; analyte was not detected at the reported quantitation limit.

Naphthalene values vary in VOC and SVOC results due to purging efficiency (naphthalene is a borderline compound between VOC and SVOC) and soil matrix variability.

TABLE 2-8. IRP WASTE STORED AT CAPE LISBURNE

CONTAINER ID NUMBER AND DATE	MEDIA	CONTAINER TYPE	NUMBER OF CONTAINERS	TOTAL VOLUME	SAMPLE NUMBER	STORAGE LOCATION
Containment Cell May 1995	Soil from excavation (includes drums)	Containment cell	1	186 cubic yards	LIS-LF01-3W04 LIZ-LF01-4S46 LIZ-LF01-4S47 LIZ-LF01-4S48 LIZ-LF01-4S49 LIZ-LF01-4S50 (composites)	Onsite at Old Landfill Area of LF01
IRP #1 through IRP #6 12 May 1995	Free product collected during excavation	55-gallon drum	6	300 gallons (6 drums)	LIZ-LF01-FP1 through LIZ-LF01-FP6	Old Incinerator Building
IRP #7 through IRP #9 26 June 1995	Free product and water from cell sump	55-gallon drum	3	150 gallons	LIS-LF01-5FP08 (water phase) LIS-LF01-5FP09 (oil phase)	Old Incinerator Building
IRP #10 through IRP #18 18 August 1995	Free product and water from cell sump	55-gallon drum	9	450 gallons	LIZ-LF01-FP7 through LIS-LF01-5FP09	Old Warehouse Building
IRP #19 18 August 1995	Free product and water from cell sump	55-gallon drum	1	50 gallons	FP7 through 5FP09	Old Cat Shed
IRP #20 through IRP #24 20 August 1995	Free product and water from cell sump	55-gallon drum	5	250 gallons	LIZ-LF01-FP7 through LIS-LF01-5FP09	Old Cat Shed
IRP #25 21 August 1995	Free product and water from cell sump	55-gallon drum	1	50 gallons	LIZ-LF01-FP7 through LIS-LF01-5FP09	Old Cat Shed
RI Drum #5 30 August 1993	Soil cuttings from RI	55-gallon drum	1	25 gallons	LIS-W02	Old Incinerator Building
Spent carbon canister	Carbon in canister which decon pad water was run through	55-gallon drum	1	55 gallons	none	Old Incinerator Building

3.0 INTERIM REMEDIAL ACTIONS AT SPILL/LEAK #3 (ST07)

This section describes the IRA at the Spill/Leak #3 (ST07) site, conducted to collect diesel potentially migrating in the subsurface just to the north of Diesel Fuel Arctic (DFA) tanks 1 and 1A. The majority of IRA activities at the site were conducted from 06 September through 13 September 1994. Startup and testing of the system, including installation of carbon treatment units to water effluent, were conducted during late June and mid-August 1995.

The objective of this IRA was to design, install, operate, and maintain a liquid petroleum recovery system to reduce the migration of diesel range petroleum from the hillside below POL tanks 1 and 1A to the drainage ditch and surface water at the toe of the hill. The recovery system is intended to operate for one to two years while remedial action and a more permanent solution are designed and implemented at the site.

3.1 DESCRIPTION OF INTERIM RECOVERY SYSTEM

The interim remediation area is at the foot of a steep hill below DFA tanks 1 and 1A (Figure 1-5). Diesel is present in the active zone at the toe of the hill as a result of one or more unspecified leaks. The diesel can potentially migrate into the adjacent surface water body. Oil absorbent booms have been laid across the drainage channel to collect diesel reaching the water body. Sometime after the spill/leak was detected, a temporary diesel collection system was installed at the base of the hill, but it did not appear to be able to cope with large volumes of spring snowmelt and runoff. Presumably the diesel product floats on groundwater in the active zone on top of permafrost, which is present during the summer thaw. The depth to permafrost is estimated to be between four and seven feet during late summer. The ground is frozen during the winter months, immobilizing the diesel. Diesel migration is maximized during the spring thaw when the active zone is shallow, completely saturated, and with a significant volume of water moving through it. As summer continues and the permafrost melts further down, increasing the depth of the active zone, free hydrocarbons in the soil follow the water table down, "smearing" (adsorbing) onto soil particles, becoming less available for movement through the active zone.

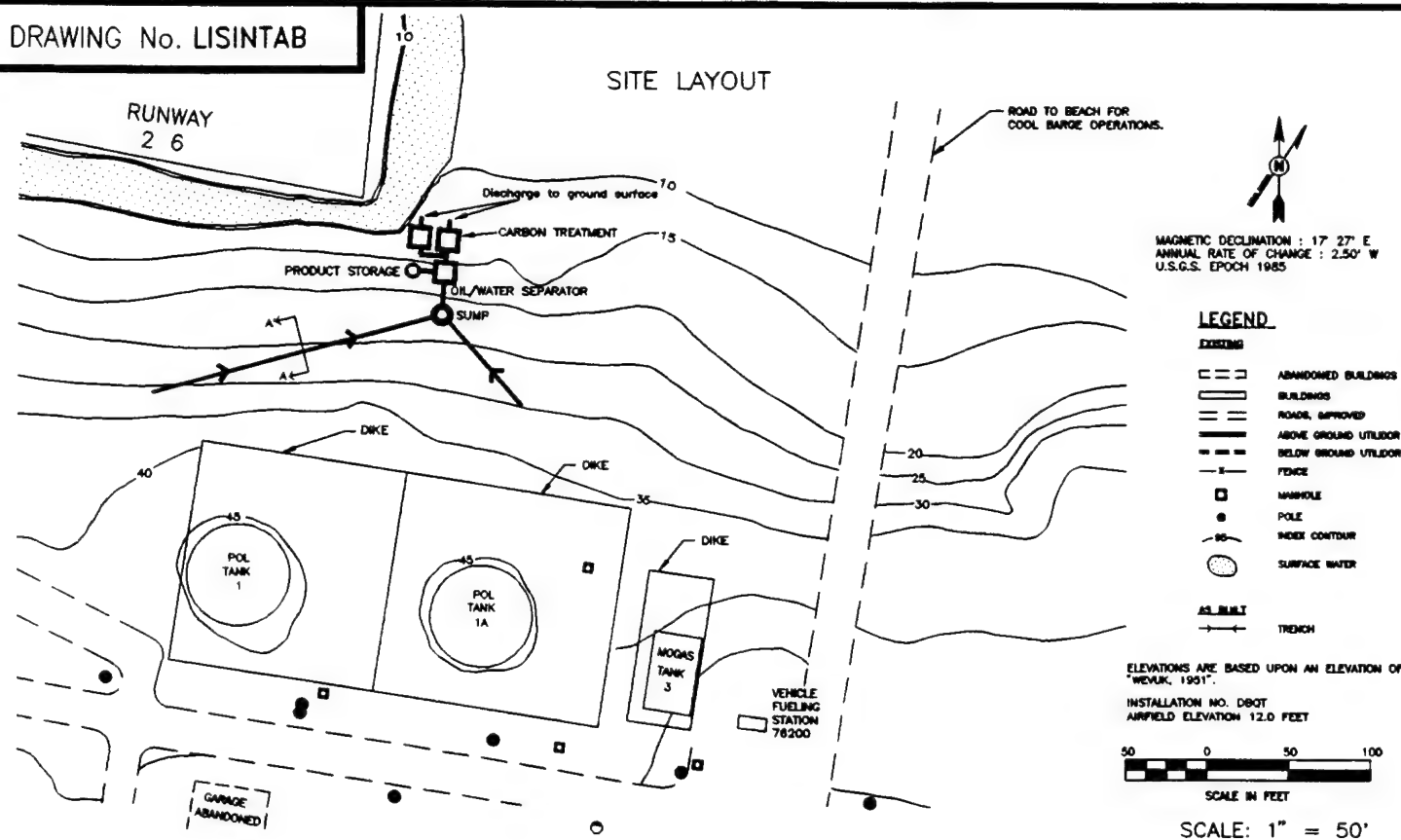
The interim recovery system constructed consists of an interceptor trench installed near the toe of the hill that collects and drains active layer water and liquid petroleum into a centrally located sump (Figure 3-1). Fluids collected in the sump drain by gravity into an oil-water separator and then into a poly-tank for temporary storage of the diesel. Periodically, the diesel collected in the tank will be transferred to 55-gallon storage drums. The water effluent from the oil/water separator is piped into two 55-gallon drums of activated carbon, and then discharged to the ground surface.

The interceptor trench is approximately 260 feet in length and between four and seven feet deep depending on the depth to permafrost at the time of construction. The trench is made up of two sections, the west trench is approximately 185' in length and the east trench is 74' in length. The east and west trenches were sloped at a rate of approximately 1:100 towards the central sump. High density polyethylene (HDPE) 10 mil plastic sheeting was used to line the trench, and two-

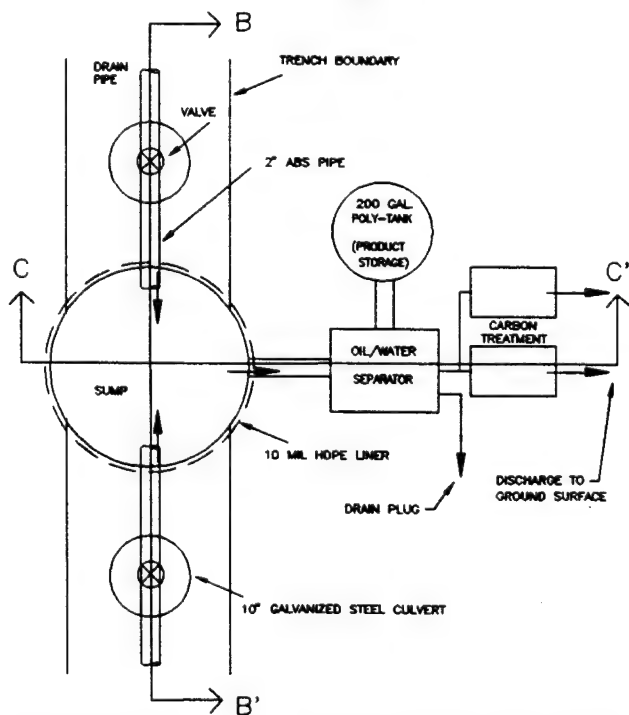
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DRAWING No. LISINTAB

SITE LAYOUT

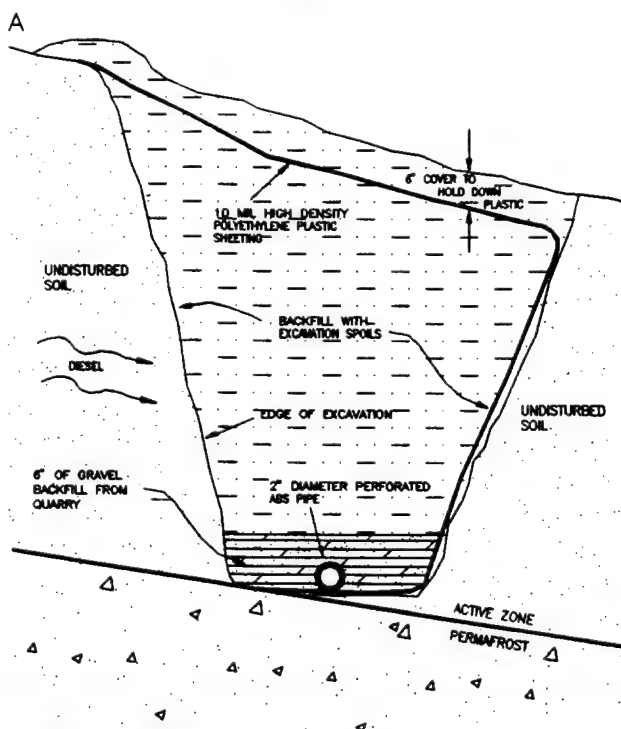


DETAIL 1: SUMP PLAN
NOT TO SCALE



DETAIL 2: TRENCH
(SECTION A-A')

SCALE 1"=1'



B

EXCAVATION SPOILS

GRAVEL

PERMAFROST



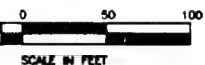
ETIC DECLINATION : 17° 27' E
AL. RATE OF CHANGE : 2.50° W
U.S. EPOCH 1985

LEGEND

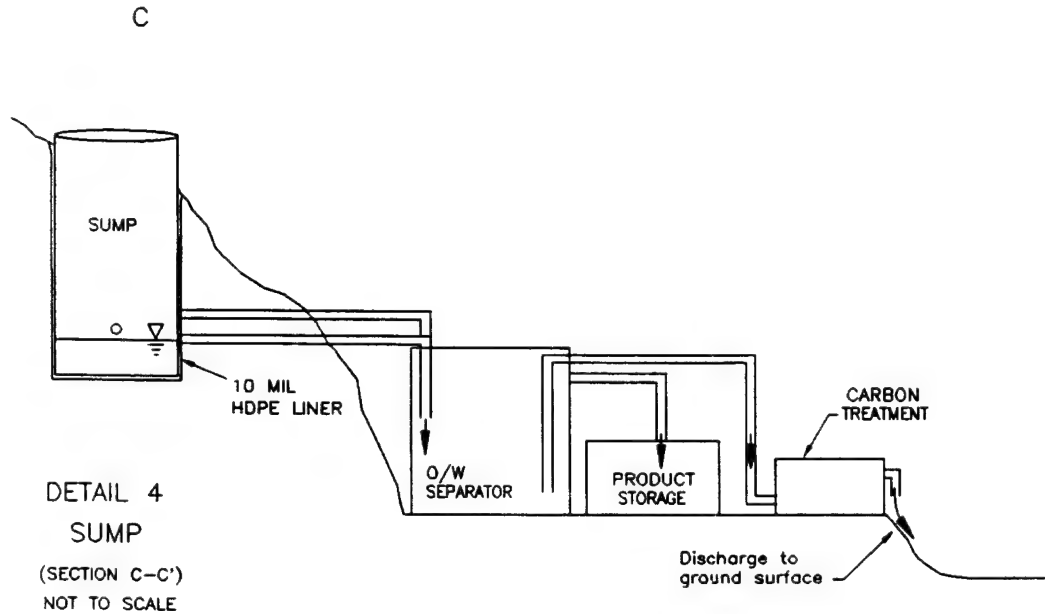
- EXISTING**
- ABANDONED BUILDINGS
 - BUILDINGS
 - ROADS, IMPROVED
 - ABOVE GROUND UTILITOR
 - BELOW GROUND UTILITOR
 - FENCE
 - MANHOLE
 - POLE
 - INDEX CONTOUR
 - SURFACE WATER
- AS-BUILT**
- TRENCH

S ARE BASED UPON AN ELEVATION OF 1568.1' FOR 1991.

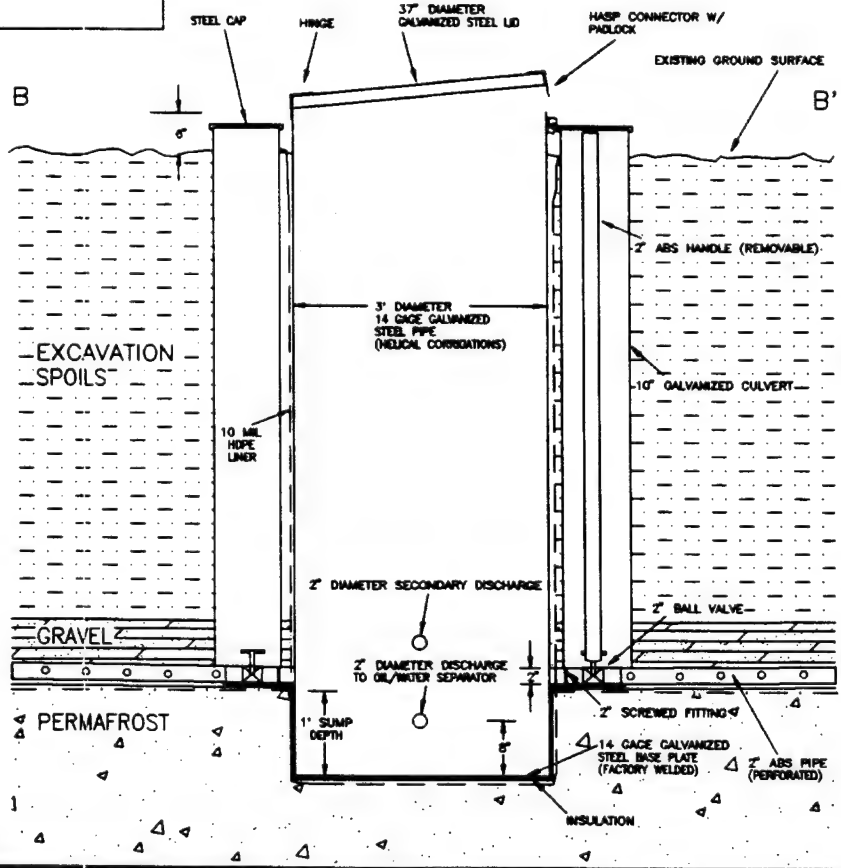
ION NO. D807
ELEVATION 12.0 FEET



SCALE: 1" = 50'



DETAIL 3: SUMP
(SECTION B-B')
SCALE 1"=1'



		DATE
DRAWN	BOB BLANKENBURG	20 JAN 1995
CHECKED	COLIN WAGONER	20 JAN 1995
REVISED	JEFF DAWSON	30 NOV 1995

**ALASKA REMOTE
RADAR INSTALLATIONS**

USAF 611th CES

FIGURE NO. 3-1

CAPE LISBURNE SPILL/
LEAK # 3 (ST07)
WATER COLLECTION AND
TREATMENT SYSTEM

inch diameter perforated Duraplus pipe was installed on the plastic sheeting to collect and convey fluids. The base of the lined trench was backfilled with coarse gravel from an onsite quarry and then filled with previously excavated materials.

A circular sump was constructed near the center of the long axis of the trench in a hole excavated to approximately one foot below the bottom of the trench at that location. The sump was constructed of three-foot diameter corrugated, galvanized steel pipe. A galvanized steel plate was welded onto the base of the pipe to provide a watertight seal. The sump was insulated with fiberboard insulation to reduce the likelihood of upsetting the thermal equilibrium by creating a temperature gradient across the wall of the sump. The pipes from the interceptor trenches gravity drain into the sump, and two two-inch gravity drains convey fluids from the sump to the oil-water separator positioned below the sump. The oil (diesel) will be collected in a 200 gallon polytank that will be emptied as necessary.

3.2 SYSTEM CONSTRUCTION

The interim product recovery system was constructed in several phases. The first phase consisted of laying out the approximate location of the trench, sump, and oil-water separator. This was done by staking the position of the sump, oil-water separator, and the two trench branches on the ground. The position of the oil-water separator was selected so that the base is approximately two feet above the elevation of the surface water. The sump was positioned directly up slope from the oil-water separator such that the pipe from the sump to the separator would have at least a one percent slope. (Photograph 37, 39, and 40 in Appendix A).

The second phase was to excavate test pits on 30-foot centers along the length of the trench. These test pits served two purposes: first, the soil and active layer water conditions were observed in each location to check for indications of liquid petroleum; second, the elevation of the top of permafrost was measured at each location. These data were used to finalize the position of the trench. The final trench was long enough to bracket the most distal test pits where indications of free product or soil staining were observed. The elevation of the top of permafrost was surveyed and posted on a base map to verify that the necessary gradient was established to drain the trench towards the sump.

The third construction phase consisted of the bulk of the system installation. The east and west trenches were excavated to their finished depth, starting from each end point and working towards the central sump. After a section of trench had been excavated, a strip of HDPE liner was lowered into the trench and positioned so that one edge was on the bottom and uphill edge of the trench. The rest of the liner was draped across the bottom of the trench, and up the downhill edge of the trench where it was secured until the trench was backfilled. (Photograph 38).

Next, the Duraplus drain pipe was glued together at the surface, wrapped with filter fabric, and lowered into the excavation. After the pipe was in the trench, it was covered with a minimum of six inches of coarse gravel from the installation quarry. After placing the gravel, excavation spoils were used as fill until the trench was filled to within approximately six inches of the original grade.

At that point, any excess HDPE liner was extended across the trench in the uphill direction to impede direct infiltration of snowmelt and runoff into the trench. The liner was covered with at least six inches of soil to protect it from the wind.

A rectangular area was excavated for the sump to a depth of approximately one foot below the elevation at which the drain pipes approach to permit drainage into the sump. A trench was also excavated for pipes between the sump and the oil-water separator. Finally, a level gravel cover was constructed downgradient of the sump for the oil/water separator, product storage tank, and activated carbon treatment units. (See photographs 37 through 40 that show the collection and treatment system during construction.)

3.3 INITIAL SYSTEM STARTUP AND CHECKOUT

After the system had been fully constructed an initial system checkout was conducted. These tests were designed to measure water and product flow rates and to collect water samples that were subsequently used in order to gain data to design a water treatment system.

First, the oil-water separator was filled until water began to drain from the water effluent pipe. Next, the sump and oil/water separator were checked to estimate the rate of inflow and to see if a petroleum sheen was apparent. Only a very minor sheen was observed. The flow rate was estimated by suspending a bucket with a known capacity from the water discharge part of the oil/water separator. The estimated flow rate was 12 gallons per minute. During the system startup, all effluent from the system was collected in 55-gallon drums. Approximately 300 gallons of water were containerized, including the water drained from the oil/water separator after completion of the startup test.

A water sample (3SW06) was collected on 13 September 1994 from the water effluent sampling port on the oil-water separator. This sample was submitted for laboratory analysis to determine the concentration of dissolved petroleum constituents. The sample was analyzed for DRPH, VOCs (8260), and SVOCs (8270). The analytical results are presented in Table 3-1.

Analytical results indicate that water collected and discharged by the system contained approximately 7 ppm DRPH. Low levels of VOCs and SVOCs detected consisted of components of diesel. Based on the flow rate and concentrations, a water treatment system was designed to treat the effluent from the oil/water separator.

In late June 1995, two activated carbon adsorption units were piped in parallel into the effluent from the oil/water separator. The water in the sump was still frozen, and no influent or effluent samples could be collected. All fittings on the system were connected, and the system was prepared for operation. In addition, the areas disturbed by the construction at the site were seeded and fertilized at the same application rates as used at the backfilled area at site LF01 (see Section 2.1).

On 17 August 1995, the operation of the collection and treatment system was observed and inspected. The oil skimmer within the oil/water separator was adjusted, and the carbon units

TABLE 3-1. SPILL/LEAK #3 EFFLUENT ANALYTICAL DATA SUMMARY - SEPTEMBER 1994

Installation: Cape Lisburne Site: Spill/Leak #3 (ST07)		Matrix: Water Units: $\mu\text{g/L}$		
Parameters	Detection Limits	Quantitation Limits	Environmental Sample ID (Effluent) ^a	Trip Blank ID
			3SW06	3TB02
Laboratory Sample ID Numbers			4763-2	4763-1
Date			9/13/94	9/13/94
ANALYSES	$\mu\text{g/L}$	$\mu\text{g/L}$	$\mu\text{g/L}$	$\mu\text{g/L}$
DRPH	100	100	6970	NA
VOCs (8260)				
Benzene	1	5	1.3J	<1
Ethylbenzene	1	5	10	<1
Naphthalene	1	5	178	<1
1,2,4-Trimethylbenzene	1	5	22	<1
1,3,5-Trimethylbenzene	1	5	36	<1
Xylenes (Total)	2	10	12 ^b	<2
SVOCs (8270)				
Naphthalene	5.5	5.5	12	NA

NA Not analyzed.
 J Result is an estimate.
 a Effluent from oil/water separator.
 b Result is indicative of p- and m-xylenes only.

TABLE 3-2. SPILL/LEAK #3 INFLUENT AND EFFLUENT ANALYTICAL DATA SUMMARY - 17 AUGUST 1995

Installation: Cape Lisburne Site: Spill/Leak #3 (ST07)			Matrix: Water Units: $\mu\text{g/L}$		
Parameters	Detection Limits	Quantitation Limits	Environmental Sample ID		Trip Blank ID
			6SW07 (Influent) ^a	6SW08 (Effluent) ^b	6TB01
Laboratory Sample ID Numbers			3524-1	3524-2	4763-1
Date			8/17/95	8/17/95	8/17/95
ANALYSES	$\mu\text{g/L}$	$\mu\text{g/L}$	$\mu\text{g/L}$	$\mu\text{g/L}$	$\mu\text{g/L}$
Petroleum Hydrocarbons (Method 418.1)	200	200	<200	<200	NA
BTEX (Method 602)					
Benzene	1	1	<1	<1	<1
Ethybenzene	1	1	<1	<1	<1
p- and m-Xylenes	1	1	<1	<1	<1
o-Xylene	1	1	<1	<1	<1

^a Influent to oil/water separator.

^b Effluent from carbon units.

NA Not analyzed.

pipled into the effluent line were placed in a horizontal position to reduce back pressure. Photographs 41 and 42 (in Appendix A) show the operating treatment system. No diesel odor or sheen was detected in any of the treatment system components during the inspection.

Samples were collected on 17 August 1995 from the influent (6SW07) into the oil/water separator and the effluent (6SW08) from the carbon units. The water samples were analyzed for petroleum hydrocarbons [United States Environmental Protection Agency (EPA) 418.1] and BTEX (EPA 602 18AAC78). No contaminants were detected in either the influent or effluent samples. Analytical results are presented in Table 3-2, and complete laboratory analysis reports are presented in Appendix B.

3.4 OPERATION AND MAINTENANCE

The system is designed to require minimal maintenance. The system will be monitored to determine if all components are operating properly. The amount of free product (diesel) collected

in the product storage tank will be measured. If required, the storage tank contents will be transferred to a 55-gallon drum.

It is recommended that, during early summer 1996, samples of the influent entering the system and effluent from the carbon units be collected and analyzed for TPH and BTEX.

Based on the results of the water samples and the amount of diesel product, if any, recovered, a determination will be made as to whether to continue operation of the system. If diesel product sheen, or constituents of diesel are detected in the influent sample or in any system components, operation will be continued. Sample results will determine if or when the carbon units should be replaced.

At the end of the 1995 operating season (mid-September) the system was winterized by closing the inflow valve to the oil/water separator, allowing the water to bypass the treatment system, and draining the oil/water separator and carbon units.

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4.0 CONCLUSIONS AND RECOMMENDATIONS

This section presents the conclusions and recommendations for the IRAs conducted at the Landfill and Waste Accumulation Area (LF01) site and the Spill/Leak #3 (ST07) site.

4.1 IRA AT LANDFILL AND WASTE ACCUMULATION AREA (LF01)

The IRA at the Landfill and Waste Accumulation Area (LF01) site, was conducted to contain liquid contaminants leaking from buried drums and migrating from the Sludge Pile/Buried Drum Area of the site. Source areas of contamination were observed at the site during the RI activities in 1993. RI sampling and analyses in August and September 1993 confirmed that low levels of contamination were migrating from the site and affecting downgradient soils/sediments and water quality.

Hand excavations were conducted during September 1994 at the Sludge Pile/Buried Drum Area. The excavation was completed at the site using heavy equipment during May 1995. Approximately 100 drums were removed from the excavation; the total volume removed from the excavation was estimated at 186 cubic yards.

Prior to backfilling the excavation with clean backfill, twelve soil samples were collected from the bottom and sidewalls of the excavation. Samples were field analyzed for TPH, and results indicated no significant contamination. Three split samples that underwent laboratory analyses, however, did contain levels of contaminants that are considered significant. The reason for the discrepancy between the field and laboratory analyses is likely due to the complex mixture of contaminants found in the excavation. Field samples were analyzed using a Hanby kit which compares reaction matrix, color, hue, and intensity to photographs of standardized results of tests done on known concentrations of discrete petroleum hydrocarbon types (i.e., gasoline, diesel, or crude oil). In situations such as the Buried Drum Area where the contaminants included a wide range of compounds (used motor oils, heavy lubricating grease, and solvents), there are no valid standards to compare the test results against. Based on the laboratory results, the subsurface soils surrounding the excavation area contain petroleum hydrocarbons (mainly RRPH), VOCs that are common components of these hydrocarbons, and some solvents. While the laboratory analyses showed significant levels of the above contaminants remain in the excavation, these levels average two orders of magnitude less than those found in the soils which were removed. The contaminants remaining in the excavation are likely a relatively thin layer which diffused into the frozen walls and bottom of the excavation from the much higher concentrations in spoils during the removal process.

Several problems were identified during the excavation and containment of drums, liquid waste, and contaminated soils. First, the size and volume of the area requiring excavation was significantly greater than anticipated. A complete electromagnetic survey (i.e., ground penetrating radar) should have been conducted at the site prior to initiating the excavation. Second, the frozen ground did not allow the removal of intact drums. Most of the drums were ripped open by the heavy equipment during the excavation process. An alternate excavation method should be used at the site in the removal of other potential buried drum areas (e.g., steam knives could

be used to thaw soils surrounding the drums so the drums and liquids in the drums can be removed intact. Third, the containment cell bottom liner should have been constructed of at least 30 mil liner material or two liners with a clay layer in between, and materials (ripped drums, ice, rocks) should have been put into the cell more carefully to avoid tears or holes in the liner. Fourth, the top liner covering the containment cell should originally have been anchored in place with sandbags to prevent wind damage.

It is recommended that prior to any further excavation at the site the remedial action selected for the excavated material, offsite or onsite treatment, be prepared to handle all wastes generated so that temporary onsite storage (i.e., containment cell) of waste materials is not required.

The remedial action alternative currently recommended at the site is thermal desorption of contaminants from soil and offsite incineration of the concentrated condensate. The soils within the containment cell will be remediated along with soils at the site contaminated with PCBs, solvents, and petroleum hydrocarbons. During subsurface sampling at gravel area #1, drums were encountered at a depth of approximately two feet. It is very likely that gravel area #1 and gravel area #2 contain buried drums; a survey conducted with a metal detector indicated that metal objects were buried in these areas. Remedial design activities should be conducted at the Landfill and Waste Accumulation Area to determine the area of the buried drums at these gravel areas. In addition, a complete electromagnetic survey of the site may discover other areas where buried drums are located. Details regarding contaminated areas at the site and recommended remedial alternatives are provided in the Cape Lisburne RI/FS report (U.S. Air Force 1995a).

4.2 IRA AT SPILL/LEAK #3 (ST07)

The IRA at the Spill/Leak #3, site ST07 was conducted because diesel fuel was observed in a temporary collection area at the base of the hillside during September 1993. During IRA construction activities in September 1994, diesel odor and sheen were observed. A water sample taken of the effluent from the oil/water separator in September 1994 contained approximately seven parts per million of DRPH. This sample was taken two days after the interceptor trench was completed and subsurface soils at the site had been excavated and backfilled.

Influent and effluent samples collected in August 1995 did not contain petroleum hydrocarbons or BTEX above the detection limits. In addition, there were no obvious signs (i.e., odor, sheen) of diesel within the collection and treatment system. It appears the residual diesel contamination at the site is bound to site soils and diesel product and/or dissolved constituents of diesel are not currently migrating from the site.

Based on the observations and data collected during the IRA, Risk Assessment, and RI/FS reports (U.S. Air Force 1995a and 1995b), it is recommended that the remedial alternative selected for the site, natural attenuation be implemented at the site. This remedial alternative is recommended because there does not appear to be any ecological or human health risk associated with site contaminants and sampling has confirmed that contaminants are not migrating from the site. Sampling and analyses of the influent and effluent from the treatment system should be conducted during the spring thaw to confirm conditions at the site have not

changed and that no contaminants are being discharged. The collection and treatment system (french drain, oil/water separator, and carbon filters) should continue to be operated prior to, and during, scheduled tank replacement actions at the site to ensure contaminants do not migrate from the site.

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5.0 REFERENCES

- U.S. Air Force. 1993. Sampling and Analysis Plan for Remedial Investigations/Feasibility Studies at Air Force Radar Station: Barter Island, Bullen Point, Oliktok Point, Point Lonely, Point Barrow, Wainwright, Point Lay, and Cape Lisburne, Alaska. Prepared for USAF Center for Environmental Excellence, Environmental Restoration Program Office, Brooks AFB, Texas. Prepared by ICF Technology Incorporated. 17 December 1993.
- U.S. Air Force. 1994a. Work Plan and Sampling and Analysis Plan for IRAs, Cape Lisburne Radar Station, Alaska. Prepared for USAF Center for Environmental Excellence, Environmental Restoration Program Office, Brooks AFB, Texas. Prepared by ICF Technology Incorporated. 09 December 1994.
- U.S. Air Force. 1994b. Addendum to the Work Plan and Sampling and Analysis Plan for Interim Remedial Actions, Cape Lisburne Radar Station, Alaska. Prepared for USAF Center for Environmental Excellence, Environmental Restoration Program Office, Brooks AFB, Texas. Prepared by ICF Technology Incorporated. 09 December 1994.
- U.S. Air Force. 1994c. Health and Safety Plan for Cape Lisburne Interim Remedial Action. Prepared for the United States Air Force Center for Environmental Excellence, Environmental Restoration Program Office, Brooks AFB, Texas. Prepared by ICF Technology Incorporated. 25 August 1994.
- U.S. Air Force. 1995a. Remedial Investigation/Feasibility Study for Cape Lisburne Radar Installation, Alaska. Prepared for the United States Air Force Center for Environmental Excellence, Environmental Restoration Program Office, Brooks AFB, Texas. Prepared by ICF Technology Incorporated. 30 September 1995.
- U.S. Air Force. 1995b. Risk Assessment for Cape Lisburne Radar Installation, Alaska. Prepared for the United States Air Force Center for Environmental Excellence, Environmental Restoration Program Office, Brooks AFB, Texas. Prepared by ICF Technology Incorporated. 30 September 1995.

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APPENDIX A
IRA PHOTOGRAPHS



Photograph 1: Tall stakes delineate the four corners of the buried drum area prior to initiating the excavation.



Photograph 2: The ripper on a D8 bulldozer was used to loosen the frozen soil and drums.



Photograph 3: A front loader with a large capacity bucket was used to scoop up excavated drums and soil.



Photograph 4: As buried drums were exposed the contents were transferred to new drums.



Photograph 5: Five-gallon buckets were used to transport the recovered liquids to new 55-gallon drums at the staging area.



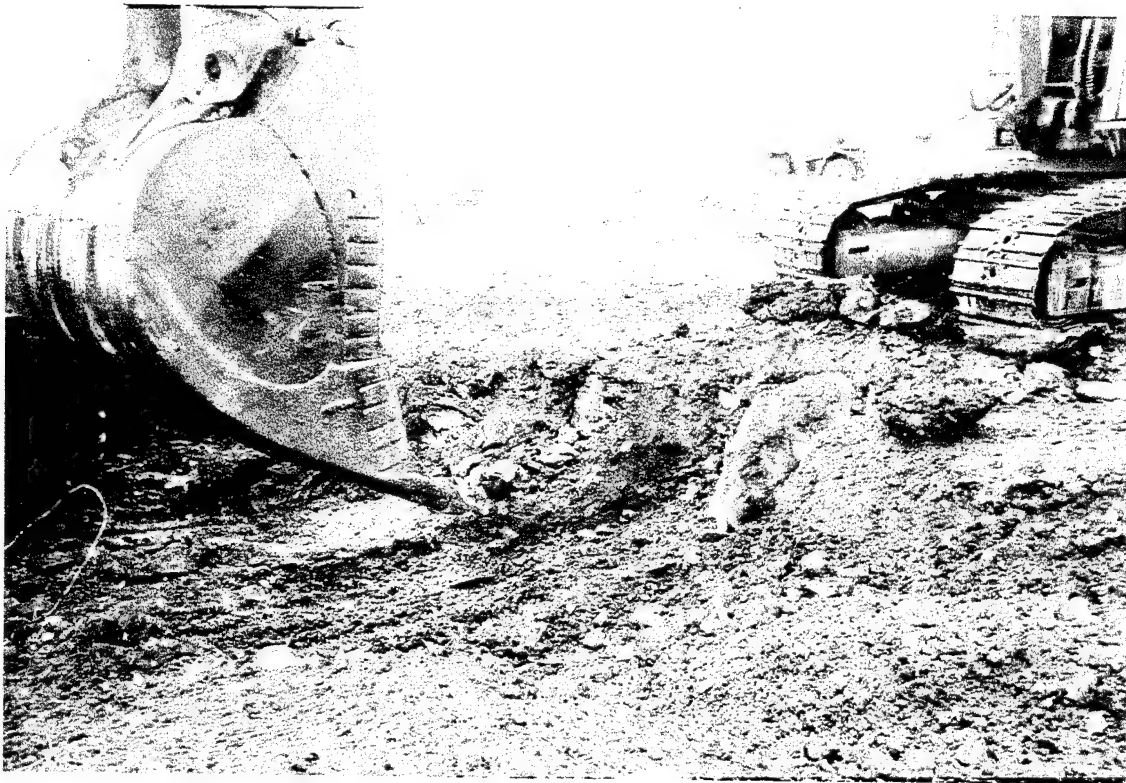
Photograph 6: Approximately 50% of the drums contained liquid, others were empty or filled with ice.



Photograph 7: These drums were located at a depth of approximately 4.5 feet below ground surface.



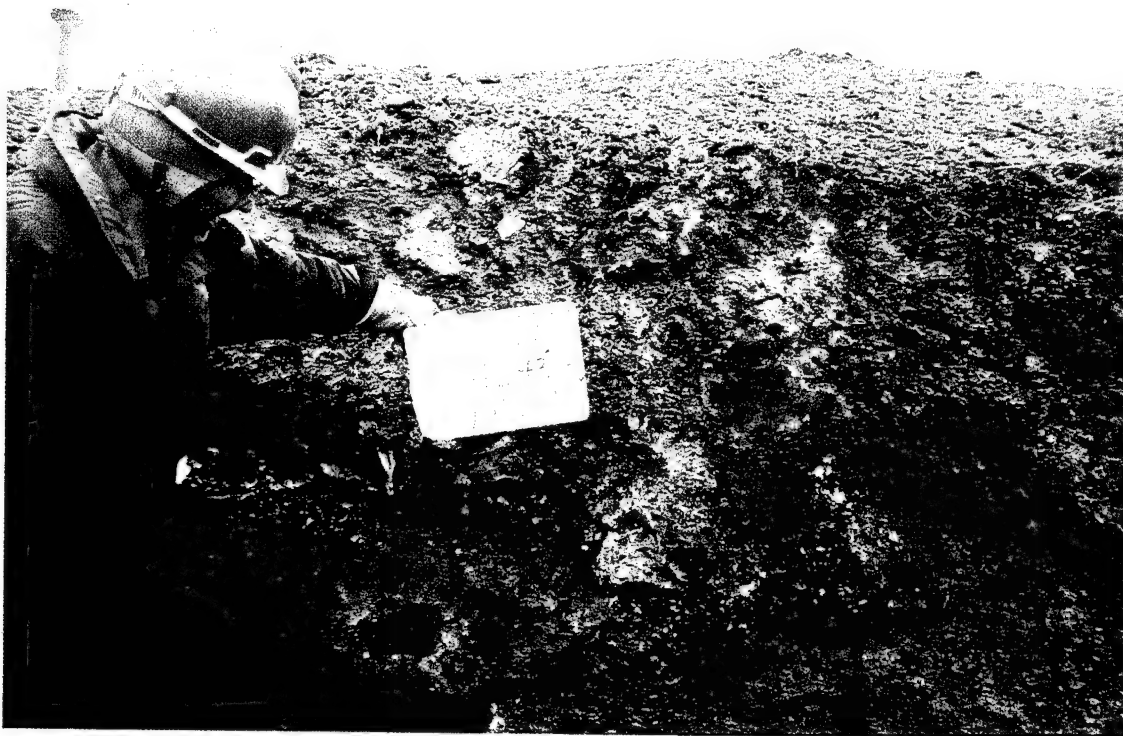
Photograph 8: An excavator was used to remove drums and soils from the pit.



Photograph 9: The large bucket of the excavator was able to excavate specific areas in the pit where the metal detector indicated metal objects were present.



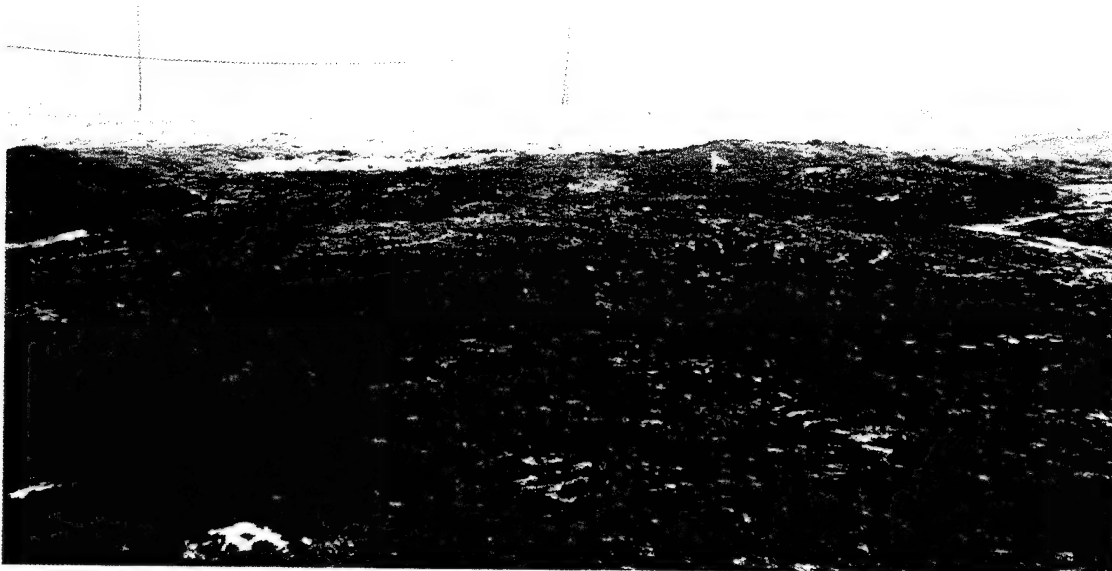
Photograph 10: Approximately 100 drums were removed from the completed excavation. The light color in the pit is the calcium peroxide that was added prior to backfilling.



Photograph 11: Sidewall (Photo 11) and bottom (Photo 12) samples were collected and tested for TPH prior to backfilling.



Photograph 12



Photograph 13: A view to the south of the backfilled excavation.



Photograph 14: A view to the north of the backfilled excavation. The excavation is located approximately twelve feet west (left) of the surface water drainage.



Photograph 15: The containment cell was sloped and bermed to facilitate drainage to the sump.



Photograph 16: The sump is located on the east end of the cell.



Photograph 17: An inclinometer was used to assure the required slope.



Photograph 18: The bottom liner was put in place and secured with gravel.



Photograph 19: As the containment cell was filled it was extended 25 feet in length to hold the additional volume of material excavated.



Photograph 20: The top of the spoils pile was leveled prior to installation of the containment cell cover.



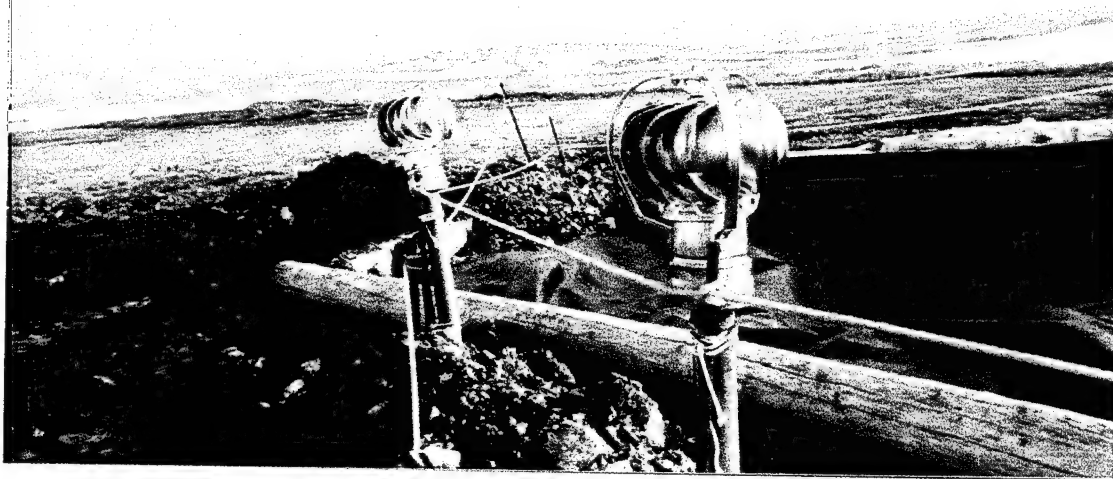
Photograph 21: Prior to installing the containment cell cover, used carpet was laid over the spoils pile to minimize the potential for sharp objects to puncture and tear the cover.



Photograph 22: Surface water from upgradient of the containment that had seeped under the sump liner was pumped from the unlined to the lined area of the sump.



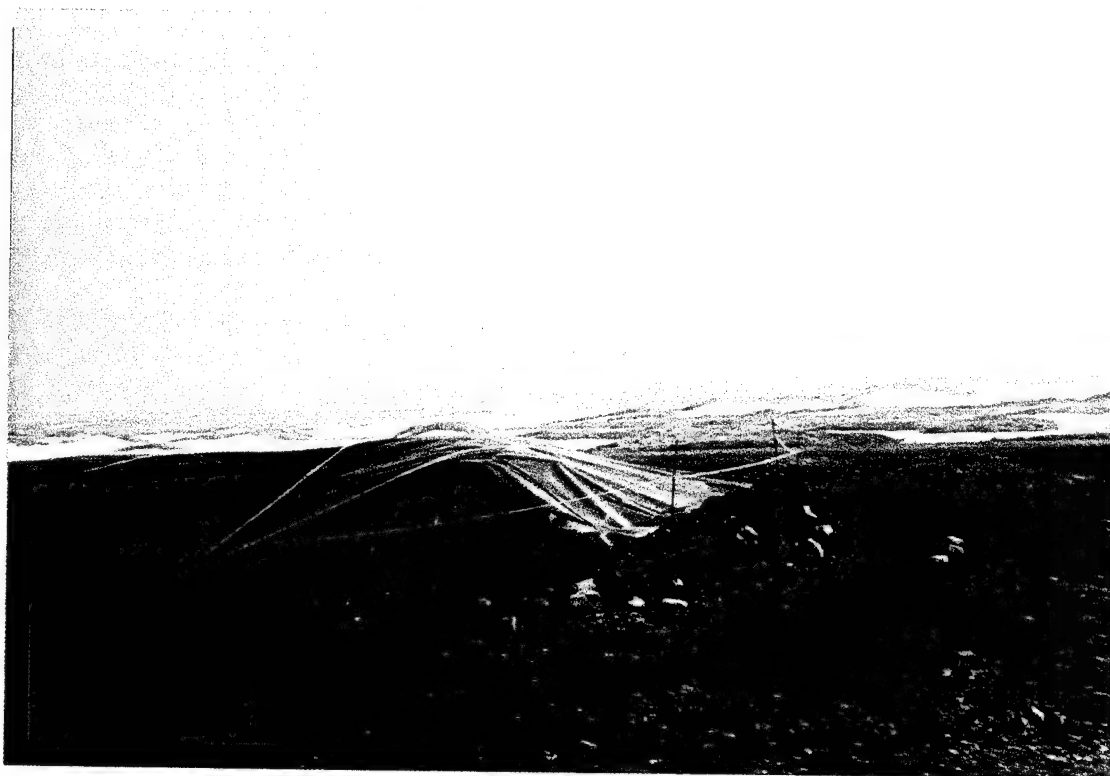
Photograph 23: Four turbine vents were constructed in the sump (east) end of the containment cell (Photos 23 and 24).



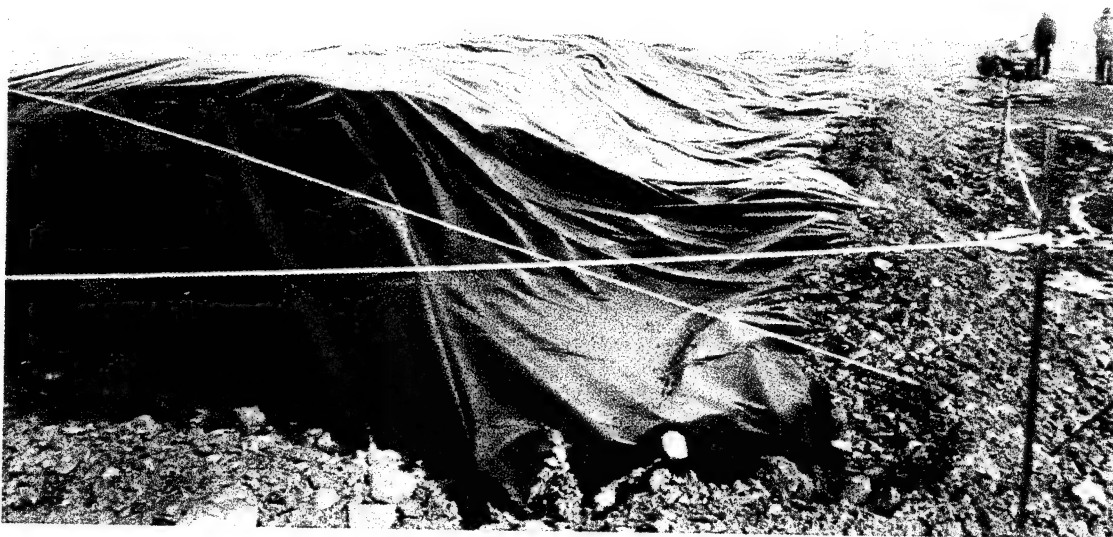
Photograph 24



Photograph 25: The sump (east) end of the completed containment cell.



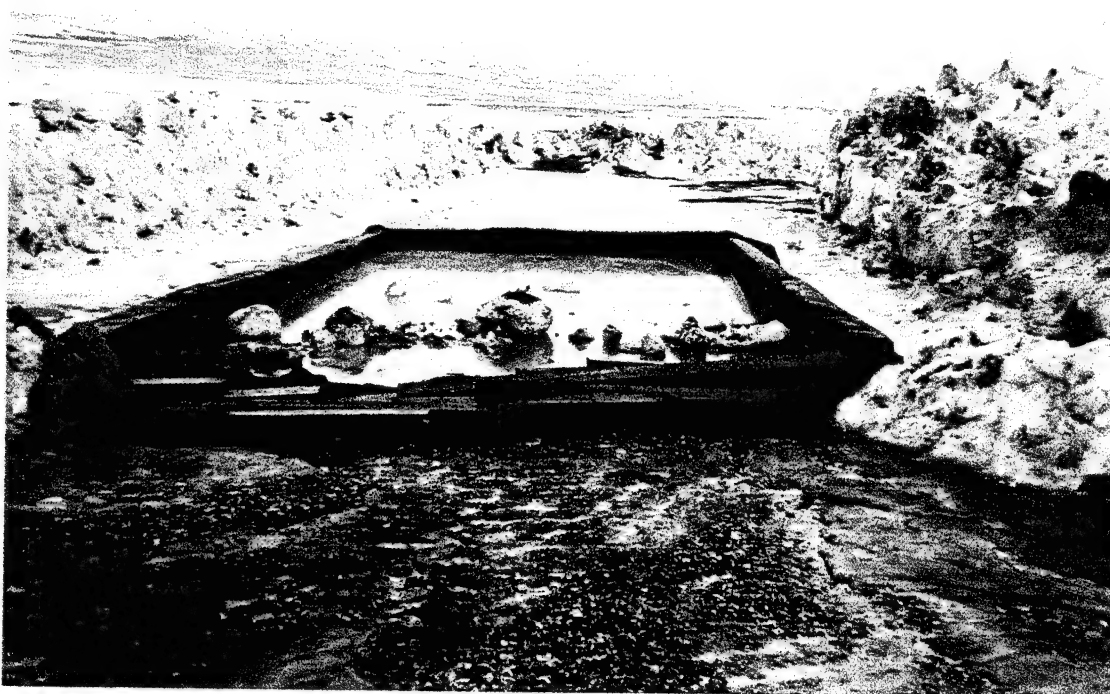
Photograph 26: The west end of the completed containment cell.



Photograph 27: A view of the south side of the containment cell showing the ropes that criss-cross the cell cover.



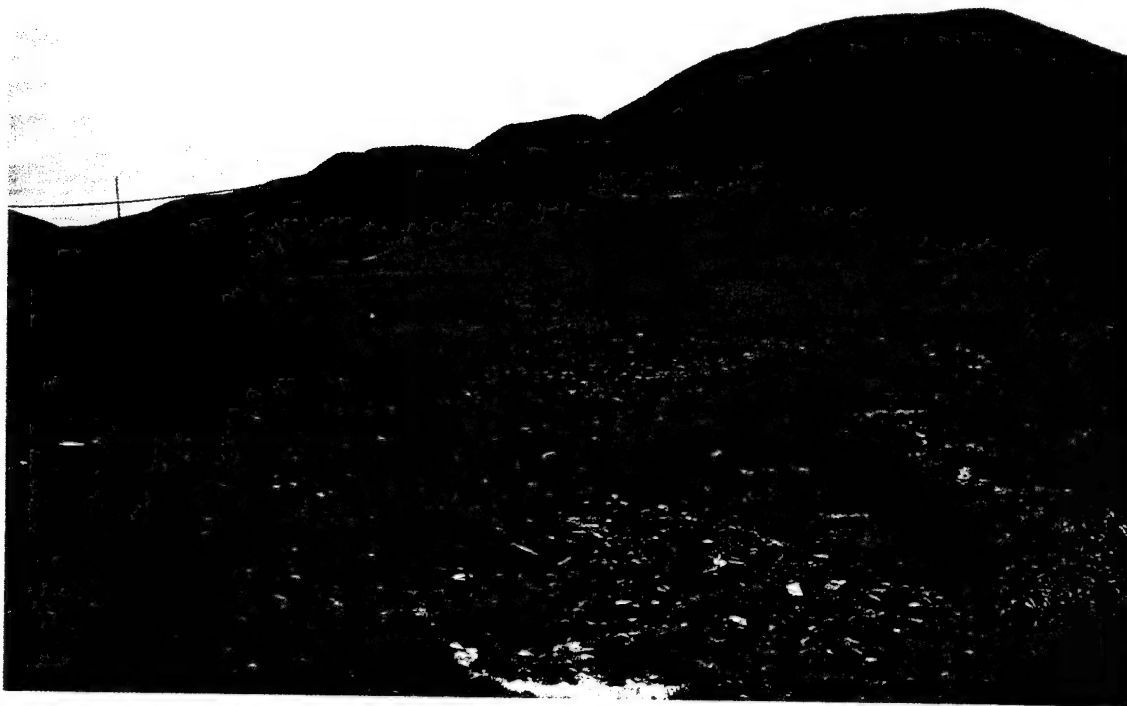
Photograph 28: Large equipment was decontaminated using a steam cleaner.



Photograph 29: The decontamination water was contained in a bermed area approximately 26 feet by 20 feet.



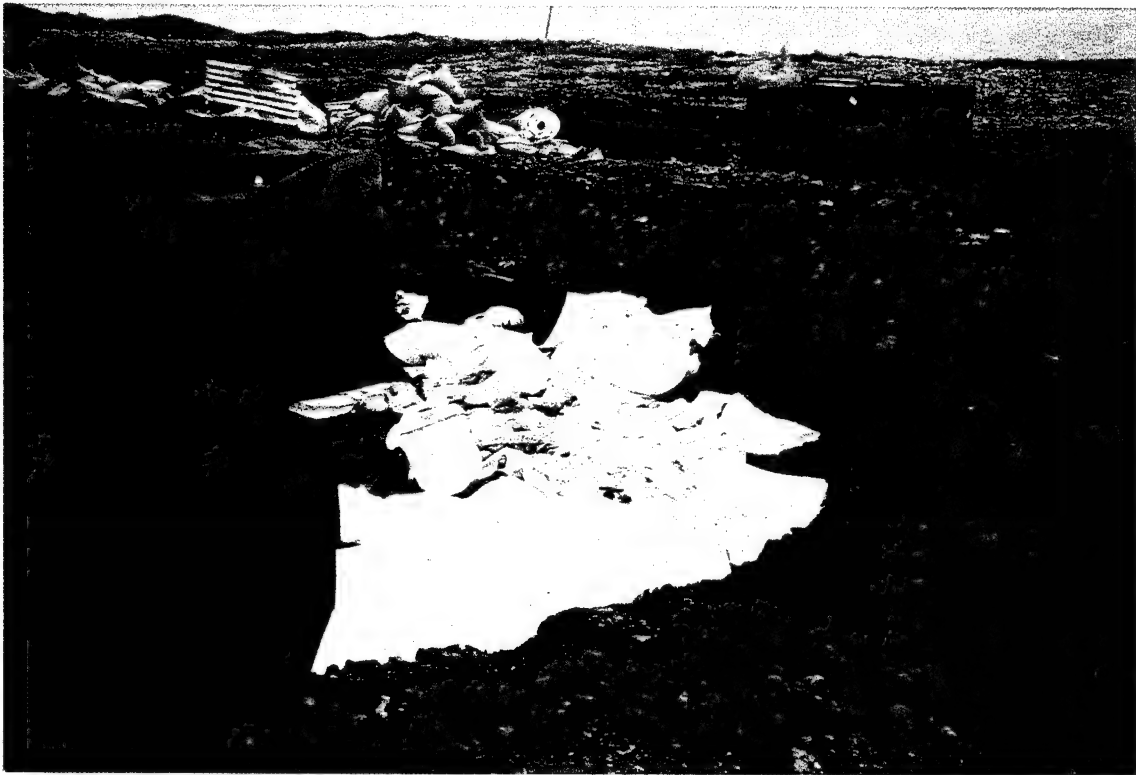
Photograph 30: During late June 1995, the backfilled excavation was fertilized and seeded.



Photograph 31: By mid-August 1995, the seed had germinated and the backfilled area had started to revegetate.



Photograph 32: Liquids being pumped from the sump area of the containment cell.



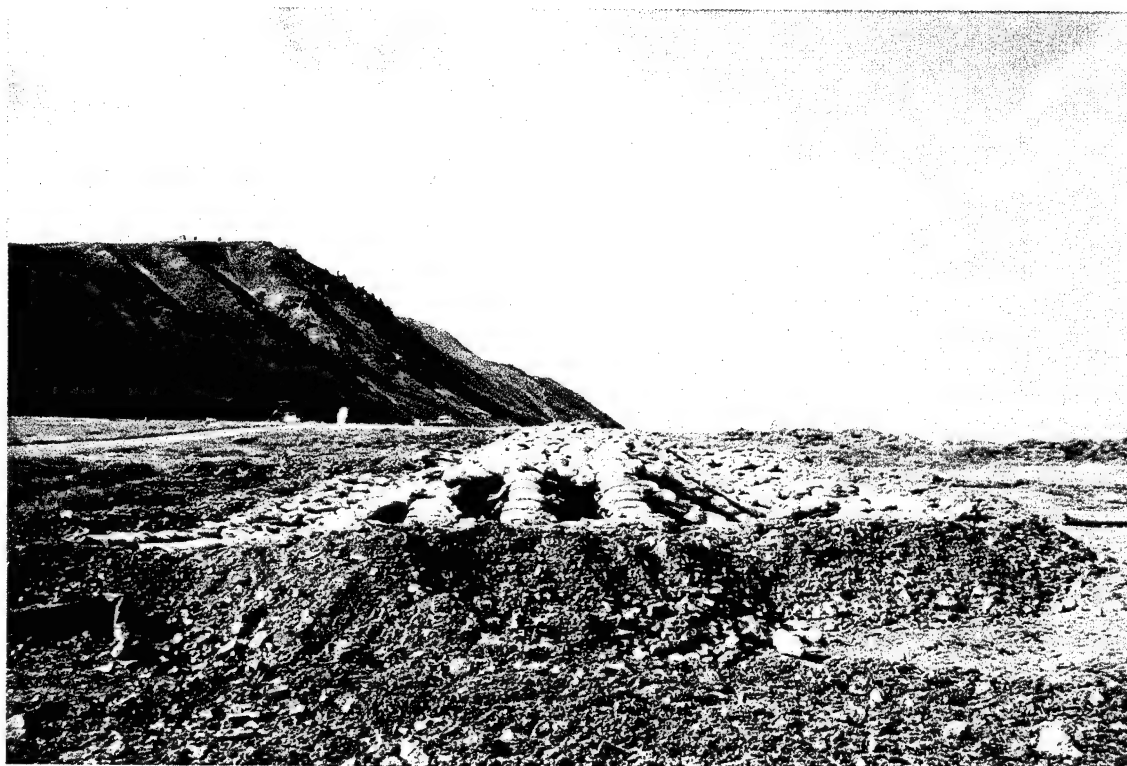
Photograph 33: Sorbent pads were used to collect residual oil on the rocks and soil in the sump.



Photograph 34: The liner was pulled back and the gravel berm pushed to the west.



Photograph 35: The liner was secured in place with gravel and sandbags.



Photograph 36: The new top liner was installed and secured with sandbags.



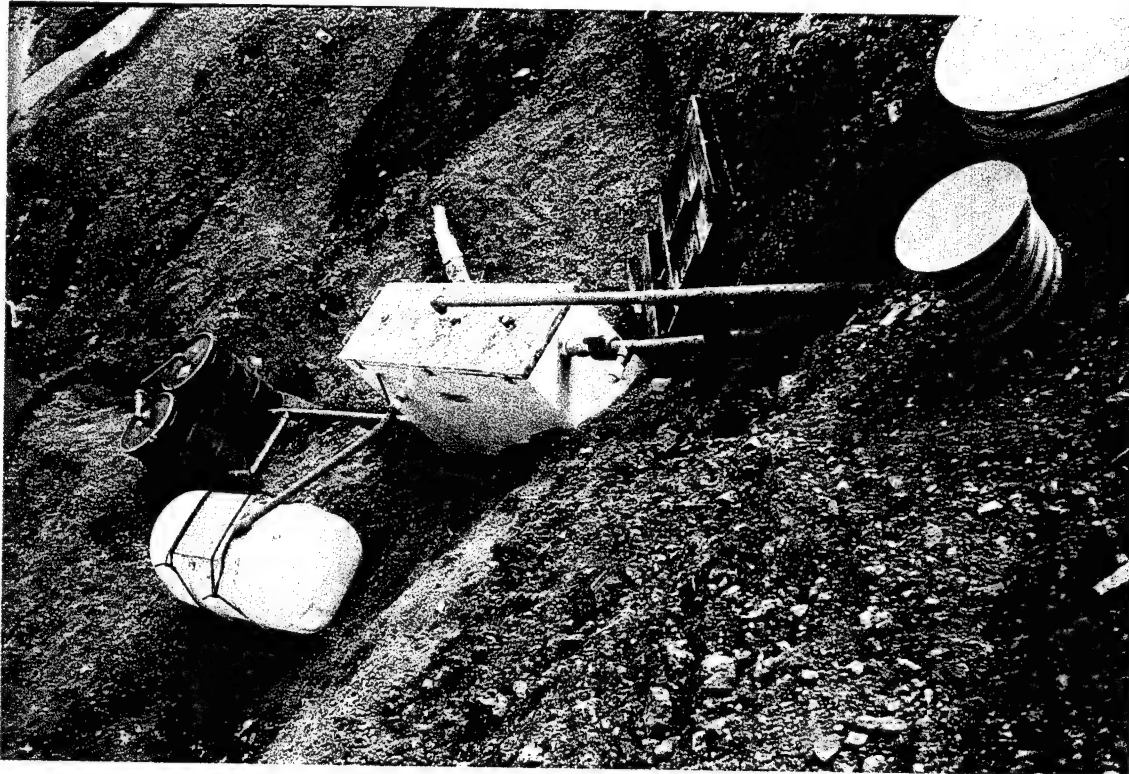
Photograph 37: The east and west trenches were sloped to the sump collection area.



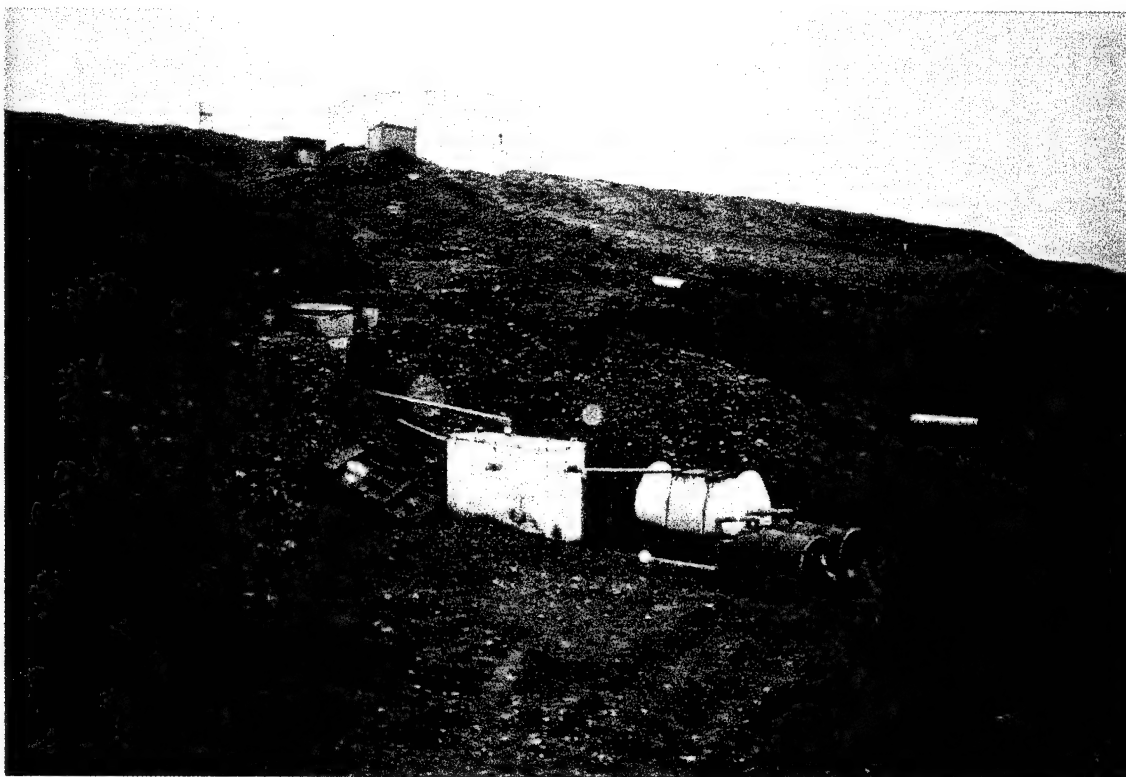
Photograph 38: The liner was placed on the bottom and downhill side of the trenches.



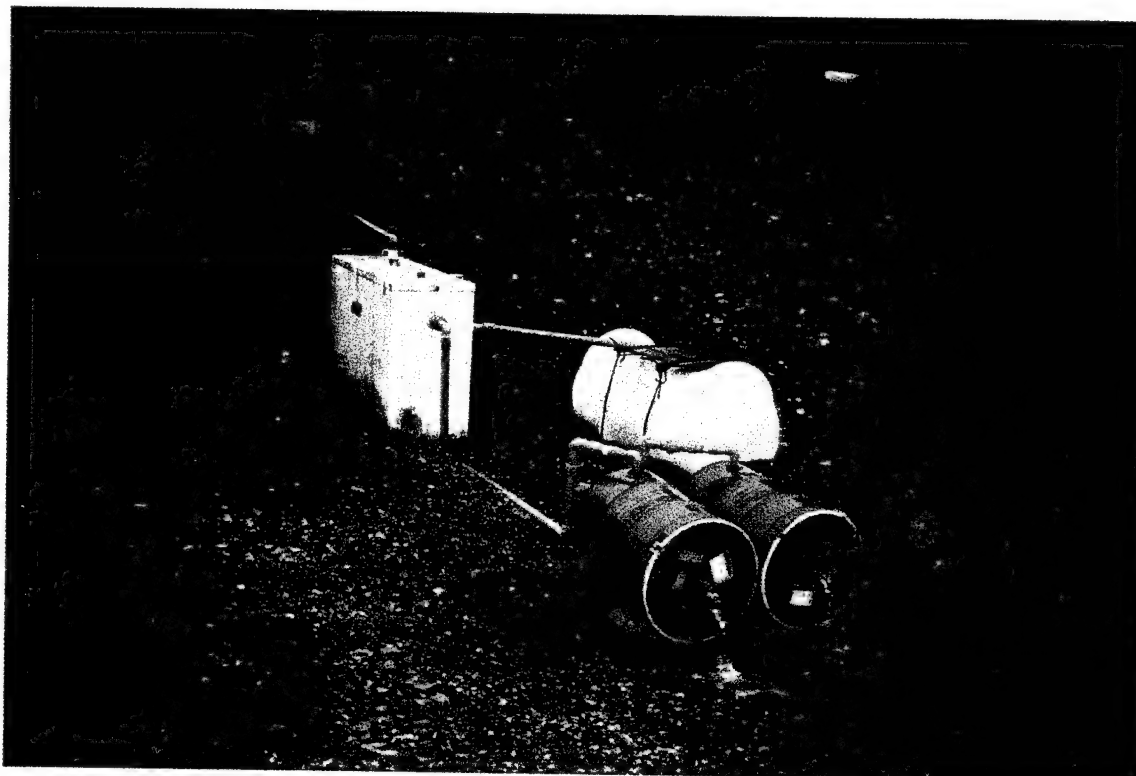
Photograph 39: The sump consisted of a culvert with a welded metal base.



Photograph 40: The sump was piped into the oil/water separator that skimmed and diverted diesel to the product collection tank. Water effluent from the oil/water separator was piped into two carbon adsorption units for treatment prior to discharge.



Photograph 41: During August 1995, the carbon units were re-piped in a horizontal position.



Photograph 42: The operating collection and treatment system.

APPENDIX B
ANALYTICAL DATA



CT&E Environmental Services Inc.

CT&E Ref.# 95.1850-2
 Matrix SOIL
 Client Sample ID LIZ-LF01-4S35

Client Name ICF KAISER ENGINEERING
 Ordered By JOHN FRERICH
 Project Name CAPE LISBURNE-LF01
 Project# 41096-614-02
 PWSID UA

WORK Order 14633
 Printed Date 05/31/95 @ 14:58 hrs.
 Collected Date 05/07/95 @ 18:40 hrs.
 Received Date 05/11/95 @ 12:30 hrs.

Technical Director STEPHEN C. EDE

Released By *Sharon Paxon*

Sample Remarks: SAMPLE COLLECTED BY: C.C. AND JOHN P. FRERICH. DRO & RRO - UNKNOWN
 HYDROCARBON WITH SEVERAL PEAKS. DRO - HEAVIER HYDROCARBONS
 CONTRIBUTING TO DIESEL RANGE QUANTITATION. MORE SAMPLE REMARKS BELOW.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	45.4		%	SM17 2540G			05/12/95	SLS
Gasoline Range Organics	4.88		mg/Kg	AK 101.0 (1-93)		05/12/95	05/16/95	SPM
Diesel Range Organics	441	D	mg/Kg	AK 102.0 (2-93)		05/13/95	05/16/95	JDG
Residual Range Organics	2000	D	mg/Kg	AK 103.0		05/16/95	05/18/95	JDG
Volatile Organics								
Benzene	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Bromobenzene	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Bromochloromethane	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Bromodichloromethane	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Bromoform	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Bromomethane	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
n-Butylbenzene	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
sec-Butylbenzene	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
tert-Butylbenzene	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Carbon Tetrachloride	0.110	D	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Chlorobenzene	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Chloroethane	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Chloroform	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Chloromethane	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
2-Chlorotoluene	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
4-Chlorotoluene	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Dibromochloromethane	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1,2-Dibromo3Chloropropane	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1,2-Dibromoethane	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Dibromomethane	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1,2-Dichlorobenzene	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1,3-Dichlorobenzene	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1,4-Dichlorobenzene	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Dichlorodifluoromethane	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1,1-Dichloroethane	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1,2-Dichloroethane	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1,1-Dichloroethene	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
cis-1,2-Dichloroethene	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
trans-1,2-Dichloroethene	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS



CT&E Environmental Services Inc.

CT&E Ref.# 95.1350-2
Matrix SOIL
Client Sample ID LIZ-LF01-4S35

1,2-Dichloropropane	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,3-Dichloropropane	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
2,2-Dichloropropane	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,1-Dichloropropene	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Ethylbenzene	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Hexachlorobutadiene	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Isopropylbenzene	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
p-Isopropyltoluene	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Methylene Chloride	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Napthalene	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
n-Propylbenzene	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Styrene	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,1,2-Tetrachloroethane	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,1,2,2-Tetrachloroethane	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Tetrachloroethene	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Toluene	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,2,3-Trichlorobenzene	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,2,4-Trichlorobenzene	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,1,1-Trichloroethane	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,1,2-Trichloroethane	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Trichloroethene	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Trichlorofluoromethane	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,2,3-Trichloropropane	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,2,4-Trimethylbenzene	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,3,5-Trimethylbenzene	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Vinyl Chloride	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
p+m-Xylene	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
o-Xylene	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Semivolatile Organics				EPA 8270			
Phenol	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
bis(2-Chloroethyl) ether	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2-Chlorophenol	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
1,3-Dichlorobenzene	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
1,4-Dichlorobenzene	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Benzyl Alcohol	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
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2-Methylphenol	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
bis(2-Chloroisopropyl) e	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4-Methylphenol	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
n-Nitroso-di-n-Propylam	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Hexachloroethane	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Nitrobenzene	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Isophorone	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2-Nitrophenol	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,4-Dimethylphenol	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Benzoic Acid	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
bis(2-Chloroethoxy) Meth	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,4-Dichlorophenol	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
1,2,4-Trichlorobenzene	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Napthalene	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4-Chloroaniline	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV



CT&E Environmental Services Inc.

CT&E Ref.# 95.1850-2
Matrix SOIL
Client Sample ID LIZ-LF01-4S35

Hexachlorobutadiene	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4-Chloro-3-Methylphenol	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2-Methylnaphthalene	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Hexachlorocyclopentadiene	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,4,6-Trichlorophenol	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,4,5-Trichlorophenol	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2-Chloronaphthalene	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2-Nitroaniline	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Dimethylphthalate	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Acenaphthylene	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,6-Dinitrotoluene	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
3-Nitroaniline	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Acenaphthene	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,4-Dinitrophenol	1.41	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4-Nitrophenol	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Dibenzofuran	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,4-Dinitrotoluene	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Diethylphthalate	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4-Chlorophenyl-Phenyleth	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Fluorene	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4-Nitroaniline	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4,6-Dinitro-2-Methylphe	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
n-Nitrosodiphenylamine	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
p-Bromophenyl-Phenyleth	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Hexachlorobenzene	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Pentachlorophenol	1.41	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Phenanthrene	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Anthracene	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
di-n-Butylphthalate	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Fluoranthene	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Pyrene	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Butylbenzylphthalate	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
3,3-Dichlorobenzidine	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Benzo(a) Anthracene	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Chrysene	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
bis(2-Ethylhexyl) Phthal	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
di-n-Octylphthalate	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Benzo(b) Fluoranthene	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Benzo(k) Fluoranthene	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Benzo(a) Pyrene	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Indeno(1,2,3-cd) Pyrene	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Dibenz(a,h) Anthracene	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Benzo(g,h,i) Perylene	0.353	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
PCBs in Soil	0.08	U	mg/Kg	EPA 8080	05/12/95	05/16/95	DSM
-----Aroclor	---						

See Special Instructions Above

See Sample Remarks Above

U = Undetected, Reported value is the practical quantification limit.

D = Secondary dilution.

UA = Unavailable

NA = Not Analyzed

LT = Less Than

GT = Greater Than



CT&E Environmental Services Inc.

Laboratory Division

Laboratory Analysis Report

CT&E REF.# 95.1850-2

SAMPLE REMARKS CONTINUED:

8270: LIBRARY SEARCH WAS PERFORMED ON THREE PROMINENT UNKNOWNNS:
RT. 10:42 MIN - 2,4-DIHYDROXY-6-METHYL-BENZOIC ACID METHYL ESTER
RT. 15:30 MIN - 1-OCTADECENE
RT. 21:76 MIN - GAMMA-SITOSTEROL



CT&E Environmental Services Inc.

CT&E Ref.# 95.1350-3
 Matrix SOIL
 Client Sample ID LIZ-LF01-4540

Client Name ICF KAISER ENGINEERING
 Ordered By JOHN FRERICH
 Project Name CAPE LISBURN-LF01
 Project# 41095-614-02
 PWSID UA

WORK Order 14533
 Printed Date 05/01/95 2 09:53 hrs.
 Collected Date 05/07/95 2 19:25 hrs.
 Received Date 05/11/95 2 12:30 hrs.

Technical Director STEPHEN C. EDE

Released By *Sharon Patten*

Sample Remarks: COLLECTED BY: C.C. & JOHN P. FRERICH. QA/QC. RRO-TYPICAL PATTERN FOR OIL BLEND & LIGHTER HYDROCARB. DRO-TYPICAL PATTERN FOR MIDDLE DISTILLATE FUEL. HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE QUANTITATION. SURR. RECOV. OUTSIDE OF ACCEPTABLE RANGE DUE TO MATRIX INTERFERENCE. J-INDICATES AN ANALYTE DETECTED BELOW THE CALIBRATION RANGE.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	45.3		%	SM17 2540G			05/12/95	SLS
Gasoline Range Organics	50.9		mg/Kg	AK 101.0 (1-93)		05/12/95		SPM
Diesel Range Organics	2512	D	mg/Kg	AK 102.0 (2-93)		05/13/95	05/16/95	JDG
Residual Range Organics	5030	D	mg/Kg	AK 103.0		05/16/95	05/17/95	JDG
Volatile Organics								
Benzene	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Bromobenzene	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Bromochloromethane	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Bromodichloromethane	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Bromoform	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Bromomethane	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
n-Butylbenzene	0.636	D	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
sec-Butylbenzene	0.168	D	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
tert-Butylbenzene	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Carbon Tetrachloride	17.3	D	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Chlorobenzene	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Chloroethane	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Chloroform	0.796	D	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Chloromethane	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
2-Chlorotoluene	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
4-Chlorotoluene	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Dibromochloromethane	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1,2-Dibromo3Chloropropane	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1,2-Dibromoethane	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Dibromomethane	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1,2-Dichlorobenzene	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1,3-Dichlorobenzene	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1,4-Dichlorobenzene	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Dichlorodifluoromethane	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1,1-Dichloroethane	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1,2-Dichloroethane	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1-Dichloroethene	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS



CT&E Environmental Services Inc.

CT&E Ref.# 95.1850-3
Matrix SOIL
Client Sample ID LIZ-LF01-4S40

cis-1,2-Dichloroethene	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
trans-1,2-Dichloroethene	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,2-Dichloropropane	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,3-Dichloropropane	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
2,2-Dichloropropane	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,1-Dichloropropene	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Ethylbenzene	2.19	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Hexachlorobutadiene	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Isopropylbenzene	0.242	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
p-Isopropyltoluene	0.178	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Methylene Chloride	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Napthalene	0.185	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
n-Propylbenzene	0.758	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Styrene	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,1,2-Tetrachloroethane	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,1,2,2-Tetrachloroethane	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Tetrachloroethene	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Toluene	3.11	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,2,3-Trichlorobenzene	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,2,4-Trichlorobenzene	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,1,1-Trichloroethane	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,1,2-Trichloroethane	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Trichloroethene	15.3	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Trichlorofluoromethane	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,2,3-Trichloropropane	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,2,4-Trimethylbenzene	6.89	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,3,5-Trimethylbenzene	2.04	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Vinyl Chloride	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
p-m-Xylene	7.33	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
o-Xylene	2.50	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Semivolatile Organics				EPA 8270			
Phenol	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
bis(2-Chloroethyl)ether	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
2-Chlorophenol	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
1,3-Dichlorobenzene	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
1,4-Dichlorobenzene	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
Benzyl Alcohol	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
1,2-Dichlorobenzene	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
2-Methylphenol	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
bis(2-Chloroisopropyl) ether	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
4-Methylphenol	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
n-Nitroso-di-n-Propylamine	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
Hexachloroethane	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
Nitrobenzene	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
Isophorone	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
2-Nitrophenol	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
2,4-Dimethylphenol	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
Benzoic Acid	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
bis(2-Chloroethoxy)Methane	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
2,4-Dichlorophenol	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
1,2,4-Trichlorobenzene	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV



CT&E Environmental Services Inc.

CT&E Ref.# 95.1350-3
 Matrix SOIL
 Client Sample ID LIZ-LF01-4S40

Naphthalene	4.26	J	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
4-Chloroaniline	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
Hexachlorobutadiene	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
4-Chloro-3-Methylphenol	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
2-Methylnaphthalene	8.59	D	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
Hexachlorocyclopentadiene	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
2,4,6-Trichlorophenol	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
2,4,5-Trichlorophenol	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
2-Chloronaphthalene	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
2-Nitroaniline	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
Dimethylphthalate	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
Acenaphthylene	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
2,6-Dinitrotoluene	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
3-Nitroaniline	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
Acenaphthene	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
2,4-Dinitrophenol	21.0	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
4-Nitrophenol	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
Dibenzofuran	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
2,4-Dinitrotoluene	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
Diethylphthalate	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
4-Chlorophenyl-Phenyleth	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
Fluorene	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
4-Nitroaniline	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
2,6-Dinitro-2-Methylphe	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
4-Nitrosodiphenylamine	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
4-Bromophenyl-Phenyleth	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
Hexachlorobenzene	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
Pentachlorophenol	21.0	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
Phenanthrene	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
Anthracene	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
di-n-Butylphthalate	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
Fluoranthene	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
Pyrene	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
Butylbenzylphthalate	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
3,3-Dichlorobenzidine	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
Benzo(a)Anthracene	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
Chrysene	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
bis(2-Ethylhexyl) Phthal	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
di-n-Octylphthalate	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
Benzo(b) Fluoranthene	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
Benzo(k) Fluoranthene	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
Benzo(a) Pyrene	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
Indeno(1,2,3-cd) Pyrene	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
Dibenz(a,h) Anthracene	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
Benzo(g,h,i) Perylene	5.26	U	mg/Kg	EPA 8270	05/12/95	05/26/95	GV
PCBs in Soil	0.149		mg/Kg	EPA 8080	05/12/95	05/16/95	DSM
-----Aroclor	1260						

See Special Instructions Above

See Sample Remarks Above

U = Undetected, Reported value is the practical quantification limit.

D = Secondary dilution.

UA = Unavailable

NA = Not Analyzed

LT = Less Than

GT = Greater Than



CT&E Environmental Services Inc.

CT&E Ref.# 95.1350-4
 Matrix SOIL
 Client Sample ID LIZ-LF01-4S44

Client Name ICF KAISER ENGINEERING
 Ordered By JOHN FRERICH
 Project Name CAPE LISBURNE-LF01
 Project# 41095-614-02
 PWSID UA

WORK Order 14533
 Printed Date 05/31/95 @ 14:59 hrs.
 Collected Date 05/07/95 @ 19:50 hrs.
 Received Date 05/11/95 @ 12:30 hrs.

Technical Director STEPHEN C. EDE

Released By *Sharon Preston*

Sample Remarks: SAMPLE COLLECTED BY: C.C. AND JOHN P. FRERICH. RRO - UNKNOWN
 HYDROCARBON WITH SEVERAL PEAKS. DRO - HEAVIER HYDROCARBONS
 CONTRIBUTING TO DIESEL RANGE QUANTITATION. SURROGATE RECOVERIES
 OUTSIDE OF ACCEPTABLE RANGE DUE TO MATRIX INTERFERENCE. J- INDICATES
 AN ANALYTE DETECTED BELOW THE CALIBRATION RANGE.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	45.3		%	SM17 2540G			05/12/95	SLS
Gasoline Range Organics	8.64		mg/Kg	AK 101.0 (1-93)		05/12/95	05/16/95	SPM
Diesel Range Organics	1780	D	mg/Kg	AK 102.0 (2-93)		05/13/95	05/16/95	JDG
Residual Range Organics	4240	D	mg/Kg	AK 103.0		05/15/95	05/18/95	
Volatile Organics				EPA 8260				
Benzene	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Bromobenzene	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Bromochloromethane	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Bromodichloromethane	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Bromoform	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Bromomethane	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
n-Butylbenzene	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
sec-Butylbenzene	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
tert-Butylbenzene	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Carbon Tetrachloride	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Chlorobenzene	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Chloroethane	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Chloroform	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Chloromethane	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
2-Chlorotoluene	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
4-Chlorotoluene	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Dibromochloromethane	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1,2-Dibromoethane	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Dibromomethane	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1,2-Dichlorobenzene	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1,3-Dichlorobenzene	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1,4-Dichlorobenzene	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Dichlorodifluoromethane	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1,1-Dichloroethane	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1,2-Dichloroethane	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1,1-Dichloroethene	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS



CT&E Environmental Services Inc.

CT&E Ref.# 95.1350-4
Matrix SOIL
Client Sample ID LIZ-LF01-4S44

cis-1,2-Dichloroethene	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
trans-1,2-Dichloroethene	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,2-Dichloropropane	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,3-Dichloropropane	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
2,2-Dichloropropane	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,1-Dichloropropene	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Ethylbenzene	0.190	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Hexachlorobutadiene	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Isopropylbenzene	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
p-Isopropyltoluene	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Methylene Chloride	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Napthalene	0.125	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
n-Propylbenzene	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Styrene	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,1,2-Tetrachloroethane	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,1,2,2-Tetrachloroethane	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Tetrachloroethene	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Toluene	0.845	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,2,3-Trichlorobenzene	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,2,4-Trichlorobenzene	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,1,1-Trichloroethane	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,1,2-Trichloroethane	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Trichloroethene	0.175	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Trichlorofluoromethane	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,2,3-Trichloropropane	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,2,4-Trimethylbenzene	0.486	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,3,5-Trimethylbenzene	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Vinyl Chloride	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
p-m-Xylene	0.620	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
o-Xylene	0.204	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Semivolatile Organics				EPA 8270			
Phenol	0.920		mg/Kg	EPA 8270	05/12/95	05/25/95	GV
bis(2-Chloroethyl) ether	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2-Chlorophenol	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
1,3-Dichlorobenzene	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
1,4-Dichlorobenzene	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Benzyl Alcohol	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
1,2-Dichlorobenzene	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2-Methylphenol	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
bis(2-Chloroisopropyl) e	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4-Methylphenol	2.16		mg/Kg	EPA 8270	05/12/95	05/25/95	GV
n-Nitroso-di-n-Propylam	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Hexachloroethane	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Nitrobenzene	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Isophorone	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2-Nitrophenol	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,4-Dimethylphenol	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Benzoic Acid	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
bis(2-Chloroethoxy)Meth	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,4-Dichlorophenol	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,4-Trichlorobenzene	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV



CT&E Environmental Services Inc.

CT&E Ref.# 95.1850-4
Matrix SOIL
Client Sample ID LIZ-LF01-4644

Naphthalene	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4-Chloroaniline	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Hexachlorobutadiene	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4-Chloro-3-Methylphenol	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2-Methylnaphthalene	0.229	J	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Hexachlorocyclopentadiene	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,4,6-Trichlorophenol	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,4,5-Trichlorophenol	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2-Chloronaphthalene	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2-Nitroaniline	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Dimethylphthalate	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Acenaphthylene	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,6-Dinitrotoluene	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
3-Nitroaniline	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Acenaphthene	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,4-Dinitrophenol	1.42	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4-Nitrophenol	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Dibenzofuran	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,4-Dinitrotoluene	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Diethylphthalate	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4-Chlorophenyl-Phenyleth	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Fluorene	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4-Nitroaniline	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4,6-Dinitro-2-Methylphe	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
n-Nitrosodiphenylamine	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4-Bromophenyl-Phenyleth	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Hexachlorobenzene	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Pentachlorophenol	1.42	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Phenanthrene	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Anthracene	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
di-n-Butylphthalate	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Fluoranthene	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Pyrene	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Butylbenzylphthalate	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
3,3-Dichlorobenzidine	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Benzo(a)Anthracene	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Chrysene	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
bis(2-Ethylhexyl) Phthal	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
di-n-Octylphthalate	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Benzo(b) Fluoranthene	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Benzo(k) Fluoranthene	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Benzo(a) Pyrene	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Indeno(1,2,3-cd) Pyrene	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Dibenz(a,h)Anthracene	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Benzo(g,h,i) Perylene	0.354	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
PCBs in Soil	0.100		mg/Kg	EPA 8080	05/12/95	05/16/95	DSM
-----Aroclor	1260						

See Special Instructions Above
See Sample Remarks Above
U = Undetected, Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than



CT&E Environmental Services Inc.

CT&E Ref.# 95.1350-5
 Matrix SOIL
 Client Sample ID LIZ-LF01-4546

Client Name ICF KAISER ENGINEERING
 Ordered By JOHN FRERICH
 Project Name CAPE LISBURN-LF01
 Project# 41095-514-02
 PWSID UA

WORK Order 14533
 Printed Date 05/31/95 @ 14:59 hrs.
 Collected Date 05/03/95 @ 09:00 hrs.
 Received Date 05/11/95 @ 12:30 hrs.

Technical Director STEPHEN C. EDE

Released By *Sharon Patten*

Sample Remarks: COLLECTED BY: C.C. AND JOHN P. FRERICH. HIGH CONCENTRATIONS. RRO-TYPICAL PATTERN FOR OIL BLEND & LIGHTER HYDROCARBONS. DRG-TYPICAL PATTERN FOR DIESEL. HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE QUANTITATION. SURR. RECOV. OUTSIDE OF ACCEPTABLE RANGE DUE TO MATRIX INTERFERENCE. J-INDICATES AN ANALYTE DETECTED BELOW THE CALIBRATION RANGE.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	48.0		%	SM17 2540G			05/12/95	SLS
Gasoline Range Organics	501	D	mg/Kg	AK 101.0 (1-93)		05/12/95	05/16/95	SPM
Diesel Range Organics	118000	D	mg/Kg	AK 102.0 (2-93)		05/13/95	05/16/95	JDG
Residual Range Organics	163000	D	mg/Kg	AK 103.0		05/16/95	05/18/95	JDG
Volatile Organics								
Benzene	2.36	D	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Bromobenzene	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Bromochloromethane	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Bromodichloromethane	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Bromoform	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Bromomethane	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
n-Butylbenzene	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
sec-Butylbenzene	1.50	D	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
tert-Butylbenzene	0.177	D	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Carbon Tetrachloride	245	D	mg/Kg	EPA 8260		05/12/95	05/16/95	BLS
Chlorobenzene	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Chloroethane	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Chloroform	6.83	D	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Chloromethane	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
2-Chlorotoluene	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
4-Chlorotoluene	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Dibromochloromethane	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1,2-Dibromo3Chloropropane	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1,2-Dibromoethane	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Dibromomethane	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1,2-Dichlorobenzene	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1,3-Dichlorobenzene	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1,4-Dichlorobenzene	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Dichlorodifluoromethane	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1,1-Dichloroethane	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1,2-Dichloroethane	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1,1-Dichloroethene	0.100	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS



CT&E Environmental Services Inc.

CT&E Ref.# 95.1350-5
Matrix SOIL
Client Sample ID LIZ-LF01-4S46

cis-1,2-Dichloroethene	0.231	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
trans-1,2-Dichloroethene	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,2-Dichloropropane	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,3-Dichloropropane	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
2,2-Dichloropropane	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,1-Dichloropropene	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Ethylbenzene	8.78	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Hexachlorobutadiene	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Isopropylbenzene	1.54	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
p-Isopropyltoluene	1.62	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Methylene Chloride	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Napthalene	20.6	D	mg/Kg	EPA 8260	05/12/95	05/16/95	BLS
n-Propylbenzene	3.48	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Styrene	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,1,2-Tetrachloroethane	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,1,2,2-Tetrachloroethane	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Tetrachloroethene	0.565	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Toluene	27.4	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,2,3-Trichlorobenzene	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,2,4-Trichlorobenzene	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,1,1-Trichloroethane	6.62	D	mg/Kg	EPA 8260	05/12/95	05/16/95	BLS
1,1,2-Trichloroethane	0.526	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Trichloroethene	512	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Trichlorofluoromethane	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,2,3-Trichloropropane	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,2,4-Trimethylbenzene	25.1	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,3,5-Trimethylbenzene	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Vinyl Chloride	0.100	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
p-m-Xylene	29.7	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
o-Xylene	12.2	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Semivolatile Organics				EPA 8270			
Phenol	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
bis(2-Chloroethyl) ether	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2-Chlorophenol	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
1,3-Dichlorobenzene	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
1,4-Dichlorobenzene	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Benzyl Alcohol	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
1,2-Dichlorobenzene	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2-Methylphenol	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
bis(2-Chloroisopropyl) e	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4-Methylphenol	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
n-Nitroso-di-n-Propylam	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Hexachloroethane	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Nitrobenzene	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Isophorone	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2-Nitrophenol	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,4-Dimethylphenol	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Benzoic Acid	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
bis(2-Chloroethoxy) Meth	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,4-Dichlorophenol	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
1,2,4-Trichlorobenzene	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV



CT&E Environmental Services Inc.

CT&E Ref.# 95.1850-5
 Matrix SOIL
 Client Sample ID LIZ-LF01-4S46

Naphthalene	64.8	D	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4-Chloroaniline	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Hexachlorobutadiene	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4-Chloro-3-Methylphenol	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2-Methylnaphthalene	137	D	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Hexachlorocyclopentadiene	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,4,6-Trichlorophenol	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,4,5-Trichlorophenol	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2-Chloronaphthalene	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2-Nitroaniline	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Dimethylphthalate	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Acenaphthylene	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,6-Dinitrotoluene	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
3-Nitroaniline	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Acenaphthene	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,4-Dinitrophenol	44.8	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4-Nitrophenol	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Dibenzofuran	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,4-Dinitrotoluene	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Diethylphthalate	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4-Chlorophenyl-Phenyleth	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Fluorene	6.3	J	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4-Nitroaniline	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,6-Dinitro-2-Methylphe	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4-Nitrosodiphenylamine	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4-Bromophenyl-Phenyleth	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Hexachlorobenzene	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Pentachlorophenol	44.8	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Phenanthrene	10.2	J	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Anthracene	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
di-n-Butylphthalate	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Fluoranthene	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Pyrene	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Butylbenzylphthalate	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
3,3-Dichlorobenzidine	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Benzo(a)Anthracene	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Chrysene	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
bis(2-Ethylhexyl) Phthal	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
di-n-Octylphthalate	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Benzo(b) Fluoranthene	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Benzo(k) Fluoranthene	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Benzo(a) Pyrene	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Indeno(1,2,3-cd) Pyrene	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Dibenz(a,h) Anthracene	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Benzo(g,h,i) Perylene	11.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
PCBs in Soil	4.86		mg/Kg	EPA 8080	05/12/95	05/16/95	DSM
-----Aroclor	1260						

See Special Instructions Above

See Sample Remarks Above

U = Undetected, Reported value is the practical quantification limit.

D = Secondary dilution.

UA = Unavailable

NA = Not Analyzed

LT = Less Than

GT = Greater Than



CT&E Environmental Services Inc.

CT&E Ref.# 95.1350-5
 Matrix SOIL
 Client Sample ID LIZ-LF01-4S47

Client Name ICF KAISER ENGINEERING
 Ordered By JOHN FRERICH
 Project Name CAPE LISBURN-LF01
 Project# 41095-614-02
 PWSID UA

WORK Order 14533
 Printed Date 05/31/95 @ 15:00 hrs.
 Collected Date 05/08/95 @ 09:10 hrs.
 Received Date 05/11/95 @ 12:30 hrs.

Technical Director STEPHEN C. EDE

Released By *Shane Patten*

Sample Remarks: SAMPLE COLLECTED BY: C.C. AND JOHN P. FRERICH. HIGH CONCENTRATIONS.
 RRO - TYPICAL PATTERN FOR OIL BLEND & LIGHTER HYDROCARBONS. DRO -
 TYPICAL PATTERN FOR DIESEL. HEAVIER HYDROCARBONS CONTRIBUTING TO
 DIESEL RANGE QUANTITATION. SURROGATE RECOVERIES OUTSIDE OF ACCEPTABLE
 RANGE DUE TO MATRIX INTERFERENCE.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	58.2		%	SM17 2540G			05/12/95	SLS
Gasoline Range Organics	187	D	mg/Kg	AK 101.0 (1-93)		05/12/95	05/16/95	SPM
Diesel Range Organics	61200	D	mg/Kg	AK 102.0 (2-93)		05/13/95	05/16/95	JDG
Residual Range Organics	135000	D	mg/Kg	AK 103.0		05/15/95	05/18/95	
Volatile Organics				EPA 8260				
Benzene	0.459	D	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Bromobenzene	0.080	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Bromochloromethane	0.080	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Bromodichloromethane	0.080	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Bromoform	0.080	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Bromomethane	0.080	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
n-Butylbenzene	3.20	D	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
sec-Butylbenzene	0.959	D	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
tert-Butylbenzene	0.073	D	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Carbon Tetrachloride	4.29	D	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Chlorobenzene	0.080	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Chloroethane	0.080	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Chloroform	0.283	D	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Chloromethane	0.080	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
2-Chlorotoluene	0.080	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
4-Chlorotoluene	0.080	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Dibromochloromethane	0.080	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1,2-Dibromo3Chloropropane	0.080	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1,2-Dibromoethane	0.080	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Dibromomethane	0.080	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1,2-Dichlorobenzene	0.080	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1,3-Dichlorobenzene	0.080	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1,4-Dichlorobenzene	0.080	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Dichlorodifluoromethane	0.080	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1,1-Dichloroethane	0.080	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1,2-Dichloroethane	0.080	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1,1-Dichloroethene	0.080	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS



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CT&E Ref.# 95.1350-5
 Matrix SOIL
 Client Sample ID LIZ-LF01-4S47

cis-1,2-Dichloroethane	0.030	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
trans-1,2-Dichloroethane	0.030	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,2-Dichloropropane	0.030	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,3-Dichloropropane	0.030	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
2,2-Dichloropropane	0.030	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,1-Dichloropropene	0.030	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Ethylbenzene	1.51	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Hexachlorobutadiene	0.030	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Isopropylbenzene	0.602	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
p-Isopropyltoluene	1.21	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Methylene Chloride	0.030	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Napthalene	0.030	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
n-Propylbenzene	1.47	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Styrene	0.030	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,1,2-Tetrachloroethane	0.030	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,1,2,2-Tetrachloroethane	0.030	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Tetrachloroethene	0.193	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Toluene	11.9	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,2,3-Trichlorobenzene	0.030	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,2,4-Trichlorobenzene	0.030	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,1,1-Trichloroethane	0.030	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,1,2-Trichloroethane	0.030	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Trichloroethene	5.63	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Trichlorofluoromethane	0.030	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,2,3-Trichloropropane	0.030	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,2,4-Trimethylbenzene	10.7	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,3,5-Trimethylbenzene	4.00	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Vinyl Chloride	0.030	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
p+m-Xylene	6.53	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
o-Xylene	3.60	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Semivolatile Organics				EPA 8270			
Phenol	3.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
bis(2-Chloroethyl) ether	3.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2-Chlorophenol	3.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
1,3-Dichlorobenzene	3.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
1,4-Dichlorobenzene	3.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Benzyl Alcohol	3.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
1,2-Dichlorobenzene	3.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2-Methylphenol	3.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
bis(2-Chloroisopropyl) e	3.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4-Methylphenol	3.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
n-Nitroso-di-n-Propylam	3.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Hexachloroethane	3.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Nitrobenzene	3.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Isophorone	3.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2-Nitrophenol	3.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,4-Dimethylphenol	3.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Benzoic Acid	3.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
bis(2-Chloroethoxy) Meth	3.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,4-Dichlorophenol	3.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,4-Trichlorobenzene	3.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV



CT&E Environmental Services Inc.

CT&E Ref.# 95.1350-6
Matrix SOIL
Client Sample ID LIZ-LF01-4S47

Naphthalene	25.1	D	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4-Chloroaniline	8.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Hexachlorobutadiene	8.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4-Chloro-3-Methylphenol	8.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2-Methylnaphthalene	49.4	D	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Hexachlorocyclopentadiene	8.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,4,6-Trichlorophenol	8.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,4,5-Trichlorophenol	8.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2-Chloronaphthalene	8.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2-Nitroaniline	8.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Dimethylphthalate	8.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Acenaphthylene	8.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,6-Dinitrotoluene	8.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
3-Nitroaniline	8.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Acenaphthene	8.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,4-Dinitrophenol	34.4	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4-Nitrophenol	8.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Dibenzofuran	8.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,4-Dinitrotoluene	8.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Diethylphthalate	8.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4-Chlorophenyl-Phenylet	8.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Fluorene	8.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4-Nitroaniline	8.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4,6-Dinitro-2-Methylphe	8.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
n-Nitrosodiphenylamine	8.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4-Bromophenyl-Phenyleth	8.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Hexachlorobenzene	8.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Pentachlorophenol	34.4	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Phenanthrene	8.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Anthracene	8.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
di-n-Butylphthalate	8.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Fluoranthene	8.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Pyrene	3.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Butylbenzylphthalate	8.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
3,3-Dichlorobenzidine	8.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Benzo(a)Anthracene	8.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Chrysene	8.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
bis(2-Ethylhexyl)Phthal	8.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
di-n-Octylphthalate	8.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Benzo(b)Fluoranthene	8.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Benzo(k)Fluoranthene	8.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Benzo(a)Pyrene	8.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Indeno(1,2,3-cd)Pyrene	8.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Dibenz(a,h)Anthracene	8.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Benzo(g,h,i)Perylene	8.60	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
PCBs in Soil	2.10		mg/Kg	EPA 8080	05/20/95	05/22/95	DSM
-----Aroclor	1260						

* See Special Instructions Above

** See Sample Remarks Above

U = Undetected, Reported value is the practical quantification limit.

D = Secondary dilution.

UA = Unavailable

NA = Not Analyzed

LT = Less Than

GT = Greater Than



CT&E Environmental Services Inc.

CT&E Ref.# 95.1850-7
Matrix SOIL
Client Sample ID LIZ-LF01-4S48

Client Name ICF KAISER ENGINEERING
Ordered By JOHN FRERICH
Project Name CAPE LISBURN-LF01
Project# 41096-614-02
PWSID UA

WORK Order 14633
Printed Date 05/01/95 @ 09:54 hrs.
Collected Date 05/03/95 @ 09:20 hrs.
Received Date 05/11/95 @ 12:30 hrs.

Technical Director STEPHEN C. EDE

Released By *Sharon Paxton*

Sample Remarks: COLLECTED BY: C.C. & JOHN P. FRERICH. HIGH CONCENTRATIONS. RRO-TYPICAL PATTERN FOR OIL BLEND AND LIGHTER HYDROCARBONS. DRO-TYPICAL PATTERN FOR DIESEL. HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE QUANTITATION. SURR. RECCV. OUTSIDE OF ACCEPTABLE RANGE DUE TO MATRIX INTERFERENCE. J-INDICATES AN ANALYTE DETECTED BELOW THE CALIBRATION RANGE.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	42.0		%	SM17 2540G			05/12/95	SLS
Gasoline Range Organics	205	D	mg/Kg	AK 101.0 (1-93)		05/12/95	05/16/95	SPM
Diesel Range Organics	98000	D	mg/Kg	AK 102.0 (2-93)		05/13/95	05/16/95	JDG
Residual Range Organics	174000	D	mg/Kg	AK 103.0		05/16/95	05/18/95	JDG
Volatile Organics								
Benzene	1.42	D	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Bromobenzene	1.00	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Bromochloromethane	1.00	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Bromodichloromethane	1.00	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Bromoform	1.00	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Bromomethane	1.00	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
n-Butylbenzene	1.00	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
sec-Butylbenzene	1.00	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
tert-Butylbenzene	1.00	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Carbon Tetrachloride	104	D	mg/Kg	EPA 8260		05/12/95	05/16/95	BLS
Chlorobenzene	1.00	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Chloroethane	1.00	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Chloroform	2.26	D	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Chloromethane	1.00	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
2-Chlorotoluene	1.00	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
4-Chlorotoluene	1.00	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Dibromochloromethane	1.00	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1,2-Dibromo3Chloropropane	1.00	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1,2-Dibromoethane	1.00	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Dibromomethane	1.00	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1,2-Dichlorobenzene	1.00	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1,3-Dichlorobenzene	1.00	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1,4-Dichlorobenzene	1.00	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Dichlorodifluoromethane	1.00	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1,1-Dichloroethane	1.00	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1,2-Dichloroethane	1.00	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1,1-Dichloroethene	1.00	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS



CT&E Environmental Services Inc.

CT&E Ref.# 95.1850-7
Matrix SOIL
Client Sample ID LIZ-LF01-4S48

cis-1,2-Dichloroethene	1.00	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
trans-1,2-Dichloroethene	1.00	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,2-Dichloropropane	1.00	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,3-Dichloropropane	1.00	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
2,2-Dichloropropane	1.00	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,1-Dichloropropene	1.00	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Ethylbenzene	7.52	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Hexachlorobutadiene	1.00	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Isopropylbenzene	1.00	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
p-Isopropyltoluene	1.00	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Methylene Chloride	1.00	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Napthalene	18.0	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
n-Propylbenzene	2.41	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Styrene	1.00	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1112-Tetrachloroethane	1.00	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1122-Tetrachloroethane	1.00	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Tetrachloroethene	1.00	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Toluene	24.4	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,2,3-Trichlorobenzene	1.00	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,2,4-Trichlorobenzene	1.00	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,1,1-Trichloroethane	1.00	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,1,2-Trichloroethane	1.00	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Trichloroethene	74.7	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Trichlorofluoromethane	1.00	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,2,3-Trichloropropane	1.00	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,2,4-Trimethylbenzene	21.1	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,3,5-Trimethylbenzene	5.92	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Vinyl Chloride	1.00	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
p+m-Xylene	24.6	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
o-Xylene	9.87	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Semivolatile Organics				EPA 8270			
Phenol	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
bis(2-Chloroethyl) ether	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2-Chlorophenol	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
1,3-Dichlorobenzene	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
1,4-Dichlorobenzene	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Benzyl Alcohol	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
1,2-Dichlorobenzene	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2-Methylphenol	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
bis(2-Chloroisopropyl) e	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4-Methylphenol	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
n-Nitroso-di-n-Propylam	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Hexachloroethane	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Nitrobenzene	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Isophorone	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2-Nitrophenol	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,4-Dimethylphenol	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Benzoic Acid	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
bis(2-Chloroethoxy) Meth	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,4-Dichlorophenol	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
1,2,4-Trichlorobenzene	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV



CT&E Environmental Services Inc.

CT&E Ref.# 95.1850-7
Matrix SOIL
Client Sample ID LIZ-LF01-4S48

Naphthalene	47.9	D	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4-Chloroaniline	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Hexachlorobutadiene	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4-Chloro-3-Methylphenol	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2-Methylnaphthalene	82.2	D	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Hexachlorocyclopentadiene	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,4,6-Trichlorophenol	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,4,5-Trichlorophenol	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2-Chloronaphthalene	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2-Nitroaniline	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Dimethylphthalate	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Acenaphthylene	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,6-Dinitrotoluene	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
3-Nitroaniline	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Acenaphthene	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,4-Dinitrophenol	53.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4-Nitrophenol	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Dibenzofuran	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,4-Dinitrotoluene	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Diethylphthalate	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4-Chlorophenyl-Phenylet	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Fluorene	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4-Nitroaniline	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,6-Dinitro-2-Methylphe	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4-Nitrosodiphenylamine	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4-Bromophenyl-Phenyleth	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Hexachlorobenzene	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Pentachlorophenol	53.2	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Phenanthrene	9.88	J	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Anthracene	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
di-n-Butylphthalate	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Fluoranthene	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Pyrene	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Butylbenzylphthalate	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
3,3-Dichlorobenzidine	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Benzo(a)Anthracene	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Chrysene	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
bis(2-Ethylhexyl) Phthal	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
di-n-Octylphthalate	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Benzo(b) Fluoranthene	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Benzo(k) Fluoranthene	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Benzo(a) Pyrene	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Indeno(1,2,3-cd) Pyrene	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Dibenz(a,h) Anthracene	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Benzo(g,h,i) Perylene	13.3	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
PCBs in Soil	3.58		mg/Kg	EPA 8080	05/20/95	05/22/95	DSM
-----Aroclor	1260						

See Special Instructions Above

See Sample Remarks Above

U = Undetected, Reported value is the practical quantification limit.

D = Secondary dilution.

UA = Unavailable

NA = Not Analyzed

LT = Less Than

GT = Greater Than



CT&E Environmental Services Inc.

CT&E Ref.# 95.1850-8
Matrix SOIL
Client Sample ID LIZ-LF01-4649

Client Name ICF KAISER ENGINEERING
Ordered By JOHN FRERICH
Project Name CAPE LISBURNE-LF01
Project# 41096-614-02
PWSID UA

WORK Order 14633
Printed Date 05/31/95 @ 15:01 hrs.
Collected Date 05/08/95 @ 09:30 hrs.
Received Date 05/11/95 @ 12:30 hrs.

Technical Director STEPHEN C. EDE

Released By *Stephen Ede*

Sample Remarks: COLLECTED BY: C.C. & JOHN P. FRERICH. HIGH CONCENTRATIONS. BRO-TYPICAL PATTERN FOR OIL BLEND AND LIGHTER HYDROCARBONS. BRO-TYPICAL PATTERN FOR DIESEL. HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE QUANTITATION. SURR. RECCV. OUTSIDE OF ACCEPTABLE RANGE DUE TO MATRIX INTERFERENCE. J-INDICATES AN ANALYTE DETECTED BELOW THE CALIBRATION RANGE.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	60.1		%	SM17 2540G			05/12/95	SLS
Gasoline Range Organics	370	D	mg/Kg	AK 101.0 (1-93)		05/12/95	05/18/95	SPM
Diesel Range Organics	58500	D	mg/Kg	AK 102.0 (2-93)		05/13/95	05/18/95	JDG
Residual Range Organics	84700	D	mg/Kg	AK 103.0		05/16/95	05/18/95	JDG
Volatile Organics				EPA 8260				
Benzene	2.25	D	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Bromobenzene	0.070	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Bromochloromethane	0.070	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Bromodichloromethane	0.070	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Bromoform	0.070	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Bromomethane	0.070	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
n-Butylbenzene	2.83	D	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
sec-Butylbenzene	0.950	D	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
tert-Butylbenzene	0.070	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Carbon Tetrachloride	216	D	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Chlorobenzene	0.070	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Chloroethane	0.070	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Chloroform	1.97	D	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Chloromethane	0.070	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
2-Chlorotoluene	0.070	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
4-Chlorotoluene	0.070	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Dibromochloromethane	0.070	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1,2-Dibromo-3-Chloropropane	0.070	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1,2-Dibromoethane	0.070	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Dibromomethane	0.070	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1,2-Dichlorobenzene	0.070	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1,3-Dichlorobenzene	0.070	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1,4-Dichlorobenzene	0.070	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
Dichlorodifluoromethane	0.070	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1,1-Dichloroethane	0.070	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1,2-Dichloroethane	0.070	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS
1,1-Dichloroethene	0.070	U	mg/Kg	EPA 8260		05/12/95	05/15/95	BLS



CT&E Environmental Services Inc.

CT&E Ref.# 95.1850-S
Matrix SOIL
Client Sample ID LIZ-LF01-4S49

cis-1,2-Dichloroethene	0.070	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
trans-1,2-Dichloroethene	0.070	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,2-Dichloropropane	0.070	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,3-Dichloropropane	0.070	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
2,2-Dichloropropane	0.070	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,1-Dichloropropene	0.070	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Ethylbenzene	12.5	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Hexachlorobutadiene	0.070	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Isopropylbenzene	1.31	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
p-Isopropyltoluene	1.14	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Methylene Chloride	0.070	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Napthalene	22.9	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
n-Propylbenzene	3.38	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Styrene	0.070	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1112-Tetrachloroethane	0.070	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1122-Tetrachloroethane	0.070	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Tetrachloroethene	0.070	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Toluene	34.1	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,2,3-Trichlorobenzene	0.070	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,2,4-Trichlorobenzene	0.070	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,1,1-Trichloroethane	0.070	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,1,2-Trichloroethane	0.070	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Trichloroethene	65.6	D	mg/Kg	EPA 8260	05/12/95	05/16/95	BLS
Trichlorofluoromethane	0.070	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,2,3-Trichloropropane	0.070	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
1,2,4-Trimethylbenzene	24.9	D	mg/Kg	EPA 8260	05/12/95	05/16/95	BLS
1,3,5-Trimethylbenzene	0.070	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Vinyl Chloride	0.070	U	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
p+m-Xylene	39.2	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
o-Xylene	14.3	D	mg/Kg	EPA 8260	05/12/95	05/15/95	BLS
Semivolatile Organics				EPA 8270			
Phenol	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
bis(2-Chloroethyl) ether	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2-Chlorophenol	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
1,3-Dichlorobenzene	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
1,4-Dichlorobenzene	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Benzyl Alcohol	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
1,2-Dichlorobenzene	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2-Methylphenol	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
bis(2-Chloroisopropyl) e	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4-Methylphenol	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
n-Nitroso-di-n-Propylam	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Hexachloroethane	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Nitrobenzene	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Isophorone	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2-Nitrophenol	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,4-Dimethylphenol	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Benzoic Acid	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
bis(2-Chloroethoxy)Meth	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,4-Dichlorophenol	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,4-Trichlorobenzene	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV



CT&E Environmental Services Inc.

CT&E Ref.# 95.1850-8
Matrix SOIL
Client Sample ID LIZ-LF01-4S49

Naphthalene	56.6	D	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4-Chloroaniline	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Hexachlorobutadiene	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4-Chloro-3-Methylphenol	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2-Methylnaphthalene	120	D	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Hexachlorocyclopentadiene	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,4,6-Trichlorophenol	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,4,5-Trichlorophenol	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2-Chloronaphthalene	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2-Nitroaniline	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Dimethylphthalate	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Acenaphthylene	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,6-Dinitrotoluene	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
3-Nitroaniline	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Acenaphthene	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,4-Dinitrophenol	29.6	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4-Nitrophenol	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Dibenzofuran	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,4-Dinitrotoluene	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Diethylphthalate	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4-Chlorophenyl-Phenyleth	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Fluorene	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4-Nitroaniline	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4,6-Dinitro-2-Methylphe	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
n-Nitrosodiphenylamine	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4-Bromophenyl-Phenyleth	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Hexachlorobenzene	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Pentachlorophenol	29.6	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Phenanthrene	6.84	J	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Anthracene	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
di-n-Butylphthalate	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Fluoranthene	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Pyrene	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Butylbenzylphthalate	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
3,3-Dichlorobenzidine	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Benzo(a)Anthracene	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Chrysene	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
bis(2-Ethylhexyl)Phthal	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
di-n-Octylphthalate	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Benzo(b)Fluoranthene	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Benzo(k)Fluoranthene	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Benzo(a)Pyrene	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Indeno(1,2,3-cd)Pyrene	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Dibenz(a,h)Anthracene	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Benzo(g,h,i)Perylene	7.40	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
PCBs in Soil	0.375		mg/Kg	EPA 8080	05/20/95	05/23/95	DSM
-----Aroclor	1260						

* See Special Instructions Above

** See Sample Remarks Above

U = Undetected, Reported value is the practical quantification limit.

D = Secondary dilution.

UA = Unavailable

NA = Not Analyzed

LT = Less Than

GT = Greater Than



CT&E Environmental Services Inc.

CT&E Ref.# 35.1850-9
 Matrix SOIL
 Client Sample ID LIZ-LF01-4650

Client Name ICF KAISER ENGINEERING
 Ordered By JOHN FRERICH
 Project Name CAPE LISBURN-LF01
 Project# 41096-614-02
 PWSID UA

WORK Order 14633
 Printed Date 05/31/95 @ 15:01 hrs.
 Collected Date 05/08/95 @ 09:40 hrs.
 Received Date 05/11/95 @ 12:30 hrs.

Technical Director STEPHEN C. EDE

Released By *Sharon Patten*

Sample Remarks: COLLECTED BY: C.C. & JOHN P. FRERICH. HIGH CONCENTRATIONS. BRO-TYPICAL PATTERN FOR OIL BLEND AND LIGHT HYDROCARBONS. BRO-TYPICAL PATTERN FOR DIESEL. HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE QUANTITATION. SURR. RECOV. OUTSIDE OF ACCEPTABLE RANGE DUE TO MATRIX INTERFERENCE. J-INDICATES AN ANALYTE DETECTED BELOW THE CALIBRATION RANGE.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	63.6		%	SM17 2540G				
Gasoline Range Organics	1020	D	mg/Kg	AK 101.0 (1-93)		05/12/95	05/16/95	SLS
Diesel Range Organics	56000	D	mg/Kg	AK 102.0 (2-93)		05/13/95	05/16/95	SPM
Residual Range Organics	87600	D	mg/Kg	AK 103.0		05/16/95	05/18/95	JDG
Volatile Organics								
Benzene	6.80	U	mg/Kg	EPA 8260				
Bromobenzene	6.80	U	mg/Kg	EPA 8260		05/12/95	05/16/95	BLS
Bromochloromethane	6.80	U	mg/Kg	EPA 8260		05/12/95	05/16/95	BLS
Bromodichloromethane	6.80	U	mg/Kg	EPA 8260		05/12/95	05/16/95	BLS
Bromoform	6.80	U	mg/Kg	EPA 8260		05/12/95	05/16/95	BLS
Bromomethane	6.80	U	mg/Kg	EPA 8260		05/12/95	05/16/95	BLS
n-Butylbenzene	6.80	U	mg/Kg	EPA 8260		05/12/95	05/16/95	BLS
sec-Butylbenzene	6.80	U	mg/Kg	EPA 8260		05/12/95	05/16/95	BLS
tert-Butylbenzene	6.80	U	mg/Kg	EPA 8260		05/12/95	05/16/95	BLS
Carbon Tetrachloride	3510	D	mg/Kg	EPA 8260		05/12/95	05/16/95	BLS
Chlorobenzene	6.80	U	mg/Kg	EPA 8260		05/12/95	05/16/95	BLS
Chloroethane	6.80	U	mg/Kg	EPA 8260		05/12/95	05/16/95	BLS
Chloroform	51.3	D	mg/Kg	EPA 8260		05/12/95	05/16/95	BLS
Chloromethane	6.80	U	mg/Kg	EPA 8260		05/12/95	05/16/95	BLS
2-Chlorotoluene	6.80	U	mg/Kg	EPA 8260		05/12/95	05/16/95	BLS
4-Chlorotoluene	6.80	U	mg/Kg	EPA 8260		05/12/95	05/16/95	BLS
Dibromochloromethane	6.80	U	mg/Kg	EPA 8260		05/12/95	05/16/95	BLS
1,2-Dibromo3Chloropropane	6.80	U	mg/Kg	EPA 8260		05/12/95	05/16/95	BLS
1,2-Dibromoethane	6.80	U	mg/Kg	EPA 8260		05/12/95	05/16/95	BLS
Dibromomethane	6.80	U	mg/Kg	EPA 8260		05/12/95	05/16/95	BLS
1,2-Dichlorobenzene	6.80	U	mg/Kg	EPA 8260		05/12/95	05/16/95	BLS
1,3-Dichlorobenzene	6.80	U	mg/Kg	EPA 8260		05/12/95	05/16/95	BLS
1,4-Dichlorobenzene	6.80	U	mg/Kg	EPA 8260		05/12/95	05/16/95	BLS
Dichlorodifluoromethane	6.80	U	mg/Kg	EPA 8260		05/12/95	05/16/95	BLS
1,1-Dichloroethane	6.80	U	mg/Kg	EPA 8260		05/12/95	05/16/95	BLS
1,2-Dichloroethane	6.80	U	mg/Kg	EPA 8260		05/12/95	05/16/95	BLS
1-Dichloroethene	6.80	U	mg/Kg	EPA 8260		05/12/95	05/16/95	BLS



CT&E Environmental Services Inc.

CT&E Ref.# 95.1350-9
Matrix SOIL
Client Sample ID LIZ-LF01-4550

cis-1,2-Dichloroethene	6.80	U	mg/Kg	EPA 8260	05/12/95	05/16/95	BLS
trans-1,2-Dichloroethene	6.80	U	mg/Kg	EPA 8260	05/12/95	05/16/95	BLS
1,2-Dichloropropane	6.80	U	mg/Kg	EPA 8260	05/12/95	05/16/95	BLS
1,3-Dichloropropane	6.80	U	mg/Kg	EPA 8260	05/12/95	05/16/95	BLS
2,2-Dichloropropane	6.80	U	mg/Kg	EPA 8260	05/12/95	05/16/95	BLS
1,1-Dichloropropene	6.80	U	mg/Kg	EPA 8260	05/12/95	05/16/95	BLS
Ethylbenzene	11.0	D	mg/Kg	EPA 8260	05/12/95	05/16/95	BLS
Hexachlorobutadiene	6.80	U	mg/Kg	EPA 8260	05/12/95	05/16/95	BLS
Isopropylbenzene	6.80	U	mg/Kg	EPA 8260	05/12/95	05/16/95	BLS
p-Isopropyltoluene	6.80	U	mg/Kg	EPA 8260	05/12/95	05/16/95	BLS
Methylene Chloride	6.80	U	mg/Kg	EPA 8260	05/12/95	05/16/95	BLS
Napthalene	17.7	D	mg/Kg	EPA 8260	05/12/95	05/16/95	BLS
n-Propylbenzene	6.80	U	mg/Kg	EPA 8260	05/12/95	05/16/95	BLS
Styrene	6.80	U	mg/Kg	EPA 8260	05/12/95	05/16/95	BLS
1112-Tetrachloroethane	6.80	U	mg/Kg	EPA 8260	05/12/95	05/16/95	BLS
1122-Tetrachloroethane	6.80	U	mg/Kg	EPA 8260	05/12/95	05/16/95	BLS
Tetrachloroethene	6.80	U	mg/Kg	EPA 8260	05/12/95	05/16/95	BLS
Toluene	31.2	D	mg/Kg	EPA 8260	05/12/95	05/16/95	BLS
1,2,3-Trichlorobenzene	6.80	U	mg/Kg	EPA 8260	05/12/95	05/16/95	BLS
1,2,4-Trichlorobenzene	6.80	U	mg/Kg	EPA 8260	05/12/95	05/16/95	BLS
1,1,1-Trichloroethane	6.80	U	mg/Kg	EPA 8260	05/12/95	05/16/95	BLS
1,1,2-Trichloroethane	6.80	U	mg/Kg	EPA 8260	05/12/95	05/16/95	BLS
Trichloroethene	900	D	mg/Kg	EPA 8260	05/12/95	05/16/95	BLS
Trichlorofluoromethane	6.80	U	mg/Kg	EPA 8260	05/12/95	05/16/95	BLS
1,2,3-Trichloropropane	6.80	U	mg/Kg	EPA 8260	05/12/95	05/16/95	BLS
1,2,4-Trimethylbenzene	6.80	U	mg/Kg	EPA 8260	05/12/95	05/16/95	BLS
1,3,5-Trimethylbenzene	6.80	U	mg/Kg	EPA 8260	05/12/95	05/16/95	BLS
Vinyl Chloride	6.80	U	mg/Kg	EPA 8260	05/12/95	05/16/95	BLS
p+m-Xylene	34.6	D	mg/Kg	EPA 8260	05/12/95	05/16/95	BLS
o-Xylene	12.0	D	mg/Kg	EPA 8260	05/12/95	05/16/95	BLS
Semivolatile Organics				EPA 8270			
Phenol	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
bis(2-Chloroethyl) ether	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2-Chlorophenol	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
1,3-Dichlorobenzene	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
1,4-Dichlorobenzene	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Benzyl Alcohol	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
1,2-Dichlorobenzene	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2-Methylphenol	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
bis(2-Chloroisopropyl) e	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4-Methylphenol	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
n-Nitroso-di-n-Propylam	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Hexachloroethane	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Nitrobenzene	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Isophorone	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2-Nitrophenol	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,4-Dimethylphenol	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Benzoic Acid	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
bis(2-Chloroethoxy)Meth	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,4-Dichlorophenol	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
1,2,4-Trichlorobenzene	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV



CT&E Environmental Services Inc.

CT&E Ref.# 95.1850-9
 Matrix SOIL
 Client Sample ID LIZ-LF01-4550

Naphthalene	40.3	D	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4-Chloroaniline	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Hexachlorobutadiene	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4-Chloro-3-Methylphenol	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2-Methylnaphthalene	89.3	D	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Hexachlorocyclopentadiene	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,4,6-Trichlorophenol	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,4,5-Trichlorophenol	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2-Chloronaphthalene	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2-Nitroaniline	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Dimethylphthalate	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Acenaphthylene	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,6-Dinitrotoluene	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
3-Nitroaniline	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Acenaphthene	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,4-Dinitrophenol	33.8	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4-Nitrophenol	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Dibenzofuran	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,4-Dinitrotoluene	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Diethylphthalate	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4-Chlorophenyl-Phenyleth	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Fluorene	5.23	J	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4-Nitroaniline	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
2,6-Dinitro-2-Methylphe	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4-Nitrosodiphenylamine	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
4-Bromophenyl-Phenyleth	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Hexachlorobenzene	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Pentachlorophenol	33.8	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Phenanthrene	7.79	J	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Anthracene	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
di-n-Butylphthalate	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Fluoranthene	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Pyrene	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Butylbenzylphthalate	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
3,3-Dichlorobenzidine	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Benzo(a)Anthracene	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Chrysene	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
bis(2-Ethylhexyl) Phthal	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
di-n-Octylphthalate	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Benzo(b) Fluoranthene	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Benzo(k) Fluoranthene	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Benzo(a) Pyrene	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Indeno(1,2,3-cd) Pyrene	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Dibenz(a,h)Anthracene	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
Benzo(g,h,i) Perylene	8.46	U	mg/Kg	EPA 8270	05/12/95	05/25/95	GV
PCBs in Soil	0.708		mg/Kg	EPA 8080	05/12/95	05/17/95	DSM
-----Aroclor	1260						

See Special Instructions Above

See Sample Remarks Above

U = Undetected, Reported value is the practical quantification limit.

D = Secondary dilution.

UA = Unavailable

NA = Not Analyzed

LT = Less Than

GT = Greater Than



COMMERCIAL TESTING & ENGINEERING CO.

ENVIRONMENTAL LABORATORY SERVICES

REPORT of ANALYSIS

Chemlab Ref.# :93.4512-9
Client Sample ID :LIS-LF01-SW06 CAPE LIS
Matrix :WATER

5633 B STREET
ANCHORAGE, AK 99518
TEL: (907) 562-2343
FAX: (907) 561-5301

Client Name :ICF KAISER ENGINEERING
Ordered By :RAY MORRIS
Project Name :DEW LINE RI/FS CAPE LIS
Project# :41096-412-01
PWSID :UA

WORK Order :70391
Report Completed :11/03/93
Collected :08/31/93 @ 15:10 hrs
Received :09/01/93 @ 12:00 hrs
Technical Director:STEPHEN C. EDE
Released By : *[Signature]*

Sample Remarks: SAMPLE COLLECTED BY: JEFF J. DAWSON AND J.P. HOLDING EXCEEDED ON
8270, NOT ANALYZED BY PER CLIENT.

Parameter	QC			Method	Allowable Limits	Ext. Date	Anal Date	Init
	Results	Qual	Units					
Volatile Organics				EPA 8260				
Benzene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
Bromobenzene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
Bromochloromethane	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
Bromodichloromethane	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
Bromoform	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
Bromomethane	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
n-Butylbenzene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
sec-Butylbenzene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
tert-Butylbenzene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
Carbon Tetrachloride	0.048		mg/L	EPA 8260		09/04	09/04	SGM
Chlorobenzene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
Chloroethane	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
Chloroform	0.0048		mg/L	EPA 8260		09/04	09/04	SGM
Chloromethane	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
2-Chlorotoluene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
4-Chlorotoluene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
Dibromochloromethane	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
1,2-Dibromoethane	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
Dibromomethane	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
1,2-Dichlorobenzene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
1,3-Dichlorobenzene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
1,4-Dichlorobenzene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
Dichlorodifluoromethane	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
1,1-Dichloroethane	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
1,2-Dichloroethane	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
1,1-Dichloroethene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
cis-1,2-Dichloroethene	0.0012		mg/L	EPA 8260		09/04	09/04	SGM
trans-1,2-Dichloroethene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
1,2-Dichloropropane	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
1,3-Dichloropropane	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
2,2-Dichloropropane	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
1,1-Dichloropropene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
Ethylbenzene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
Hexachlorobutadiene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
Isopropylbenzene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM



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ENVIRONMENTAL SERVICES IN ALASKA, COLORADO, UTAH, ILLINOIS, OHIO, MARYLAND, WEST VIRGINIA, NEW JERSEY, SOUTH CAROLINA



COMMERCIAL TESTING & ENGINEERING CO.

ENVIRONMENTAL LABORATORY SERVICES

REPORT OF ANALYSIS

Chemlab Ref.# :93.4512-9
Client Sample ID :LIS-LF01-SW06 CAPE LIS
Matrix :WATER

5633 B STREET
ANCHORAGE, AK 99518
TEL: (907) 562-2343
FAX: (907) 561-5301

p-Isopropyltoluene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
Methylene Chloride	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
Napthalene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
n-Propylbenzene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
Styrene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
1112-Tetrachloroethane	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
1122-Tetrachloroethane	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
Tetrachloroethene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
Toluene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
1,2,3-Trichlorobenzene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
1,2,4-Trichlorobenzene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
1,1,1-Trichloroethane	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
1,1,2-Trichloroethane	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
Trichloroethene	0.0068		mg/L	EPA 8260		09/04	09/04	SGM
Trichlorofluoromethane	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
1,2,3-Trichloropropane	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
1,2,4-Trimethylbenzene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
1,3,5-Trimethylbenzene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
Vinyl Chloride	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
p+m-Xylene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
o-Xylene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
Residue, Non-Filterable	35		mg/L	EPA 160.2		09/07	09/07	GPP
Residue, Filterable (TDS)	258		mg/L	EPA 160.1	500	09/20	09/21	RJK

* See Special Instructions Above
** See Sample Remarks Above
U = Undetected, Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than



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ENVIRONMENTAL SERVICES IN ALASKA, COLORADO, UTAH, ILLINOIS, OHIO, MARYLAND, WEST VIRGINIA, NEW JERSEY, SOUTH CAROLINA



COMMERCIAL TESTING & ENGINEERING CO.
ENVIRONMENTAL LABORATORY SERVICES

SINCE 1908

REPORT of ANALYSIS

Chemlab Ref.# :93.4513-6
Client Sample ID :LIS-LF01-SW06 CAPE LIS
Matrix :WATER

5633 B STREET
ANCHORAGE, AK 99518
TEL: (907) 562-2343
FAX: (907) 561-5301

Client Name :ICF KAISER ENGINEERING
Ordered By :RAY MORRIS
Project Name :DEW LINE RI/FS CAPE LIS
Project# :41096-412-01
PWSID :UA

WORK Order :70393
Report Completed :09/24/93
Collected :08/31/93 @ 15:10 hrs
Received :09/01/93 @ 12:00 hrs
Technical Director:STEPHEN C. EDE
Released By : *[Signature]* C. EDE

Sample Remarks: SAMPLE COLLECTED BY: JEFF J. DAWSON AND J.P.

Parameter	QC			Method	Allowable Limits	Ext. Date	Anal Date	Init
Results	Qual	Units						
Semivolatile Organics				EPA 8270				
Phenol	0.011	U	mg/L	EPA 8270		09/07	09/23	MTT
bis(2-Chloroethyl)ether	0.011	U	mg/L	EPA 8270		09/07	09/23	MTT
2-Chlorophenol	0.011	U	mg/L	EPA 8270		09/07	09/23	MTT
1,3-Dichlorobenzene	0.011	U	mg/L	EPA 8270		09/07	09/23	MTT
1,4-Dichlorobenzene	0.011	U	mg/L	EPA 8270		09/07	09/23	MTT
Benzyl Alcohol	0.011	U	mg/L	EPA 8270		09/07	09/23	MTT
1,2-Dichlorobenzene	0.011	U	mg/L	EPA 8270		09/07	09/23	MTT
2-Methylphenol	0.011	U	mg/L	EPA 8270		09/07	09/23	MTT
bis(2-Chloroisopropyl)e	0.011	U	mg/L	EPA 8270		09/07	09/23	MTT
4-Methylphenol	0.011	U	mg/L	EPA 8270		09/07	09/23	MTT
n-Nitroso-di-n-Propylam	0.011	U	mg/L	EPA 8270		09/07	09/23	MTT
Hexachloroethane	0.011	U	mg/L	EPA 8270		09/07	09/23	MTT
Nitrobenzene	0.011	U	mg/L	EPA 8270		09/07	09/23	MTT
Isophorone	0.011	U	mg/L	EPA 8270		09/07	09/23	MTT
2-Nitrophenol	0.011	U	mg/L	EPA 8270		09/07	09/23	MTT
2,4-Dimethylphenol	0.011	U	mg/L	EPA 8270		09/07	09/23	MTT
Benzoic Acid	0.011	U	mg/L	EPA 8270		09/07	09/23	MTT
bis(2-Chloroethoxy)Meth	0.011	U	mg/L	EPA 8270		09/07	09/23	MTT
2,4-Dichlorophenol	0.011	U	mg/L	EPA 8270		09/07	09/23	MTT
1,2,4-Trichlorobenzene	0.011	U	mg/L	EPA 8270		09/07	09/23	MTT
Naphthalene	0.011	U	mg/L	EPA 8270		09/07	09/23	MTT
4-Chloroaniline	0.011	U	mg/L	EPA 8270		09/07	09/23	MTT
Hexachlorobutadiene	0.011	U	mg/L	EPA 8270		09/07	09/23	MTT
4-Chloro-3-Methylphenol	0.011	U	mg/L	EPA 8270		09/07	09/23	MTT
2-Methylnaphthalene	0.011	U	mg/L	EPA 8270		09/07	09/23	MTT
Hexachlorocyclopentadie	0.011	U	mg/L	EPA 8270		09/07	09/23	MTT
2,4,6-Trichlorophenol	0.011	U	mg/L	EPA 8270		09/07	09/23	MTT
2,4,5-Trichlorophenol	0.011	U	mg/L	EPA 8270		09/07	09/23	MTT
2-Chloronaphthalene	0.011	U	mg/L	EPA 8270		09/07	09/23	MTT
2-Nitroaniline	0.011	U	mg/L	EPA 8270		09/07	09/23	MTT
Dimethylphthalate	0.011	U	mg/L	EPA 8270		09/07	09/23	MTT
Acenaphthylene	0.011	U	mg/L	EPA 8270		09/07	09/23	MTT
2,6-Dinitrotoluene	0.011	U	mg/L	EPA 8270		09/07	09/23	MTT
3-Nitroaniline	0.011	U	mg/L	EPA 8270		09/07	09/23	MTT
Acenaphthene	0.011	U	mg/L	EPA 8270		09/07	09/23	MTT
2,4-Dinitrophenol	0.011	U	mg/L	EPA 8270		09/07	09/23	MTT
4-Nitrophenol	0.011	U	mg/L	EPA 8270		09/07	09/23	MTT



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COMMERCIAL TESTING & ENGINEERING CO.

ENVIRONMENTAL LABORATORY SERVICES

REPORT OF ANALYSIS *ac*

Chemlab Ref.# :93.4513-6
Client Sample ID :LIS-LF01-SW06 CAPE LIS
Matrix :WATER

5633 B STREET
ANCHORAGE, AK 99518
TEL: (907) 562-2343
FAX: (907) 561-5301

Dibenzofuran	0.011	U	mg/L	EPA 8270	09/07 09/23	MTT
2,4-Dinitrotoluene	0.011	U	mg/L	EPA 8270	09/07 09/23	MTT
Diethylphthalate	0.011	U	mg/L	EPA 8270	09/07 09/23	MTT
4-Chlorophenyl-Phenylet	0.011	U	mg/L	EPA 8270	09/07 09/23	MTT
Fluorene	0.011	U	mg/L	EPA 8270	09/07 09/23	MTT
4-Nitroaniline	0.011	U	mg/L	EPA 8270	09/07 09/23	MTT
4,6-Dinitro-2-Methylphe	0.011	U	mg/L	EPA 8270	09/07 09/23	MTT
n-Nitrosodiphenylamine	0.011	U	mg/L	EPA 8270	09/07 09/23	MTT
4-Bromophenyl-Phenyleth	0.011	U	mg/L	EPA 8270	09/07 09/23	MTT
Hexachlorobenzene	0.011	U	mg/L	EPA 8270	09/07 09/23	MTT
Pentachlorophenol	0.011	U	mg/L	EPA 8270	09/07 09/23	MTT
Phenanthrene	0.011	U	mg/L	EPA 8270	09/07 09/23	MTT
Anthracene	0.011	U	mg/L	EPA 8270	09/07 09/23	MTT
di-n-Butylphthalate	0.011	U	mg/L	EPA 8270	09/07 09/23	MTT
Fluoranthene	0.011	U	mg/L	EPA 8270	09/07 09/23	MTT
Pyrene	0.011	U	mg/L	EPA 8270	09/07 09/23	MTT
Butylbenzylphthalate	0.011	U	mg/L	EPA 8270	09/07 09/23	MTT
3,3-Dichlorobenzidine	0.011	U	mg/L	EPA 8270	09/07 09/23	MTT
Benzo(a)Anthracene	0.011	U	mg/L	EPA 8270	09/07 09/23	MTT
Chrysene	0.011	U	mg/L	EPA 8270	09/07 09/23	MTT
bis(2-Ethylhexyl)Phthal	0.011	U	mg/L	EPA 8270	09/07 09/23	MTT
di-n-Octylphthalate	0.011	U	mg/L	EPA 8270	09/07 09/23	MTT
Benzo(b)Fluoranthene	0.011	U	mg/L	EPA 8270	09/07 09/23	MTT
Benzo(k)Fluoranthene	0.011	U	mg/L	EPA 8270	09/07 09/23	MTT
Benzo(a)Pyrene	0.011	U	mg/L	EPA 8270	09/07 09/23	MTT
Indeno(1,2,3-cd)Pyrene	0.011	U	mg/L	EPA 8270	09/07 09/23	MTT
Dibenz(a,h)Anthracene	0.011	U	mg/L	EPA 8270	09/07 09/23	MTT
Benzo(g,h,i)Perylene	0.011	U	mg/L	EPA 8270	09/07 09/23	MTT

See Special Instructions Above

* See Sample Remarks Above

U = Undetected, Reported value is the practical quantification limit.

D = Secondary dilution.

UA = Unavailable

NA = Not Analyzed

LT = Less Than

GT = Greater Than



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ENVIRONMENTAL SERVICES IN ALASKA, COLORADO, UTAH, ILLINOIS, OHIO, MARYLAND, WEST VIRGINIA, NEW JERSEY, SOUTH CAROLINA



COMMERCIAL TESTING & ENGINEERING CO.

ENVIRONMENTAL LABORATORY SERVICES

REPORT OF ANALYSIS

Chemlab Ref.# :93.4511-7
Client Sample ID :LIS-LF01-SW06 CAPE LIS
Matrix :WATER

5633 B STREET
ANCHORAGE, AK 99518
TEL: (907) 562-2343
FAX: (907) 561-5301

Client Name :ICF KAISER ENGINEERING
Ordered By :RAY MORRIS
Project Name :DEW LINE RI/FS CAPE LIS
Project# :41096-412-01
PWSID :UA

WORK Order :70389
Report Completed :09/22/93
Collected :08/31/93 @ 15:10 hr
Received :09/01/93 @ 12:00 hr
Technical Director:STEPHEN C. EDE
Released By : *[Signature]*

Sample Remarks: SAMPLE COLLECTED BY: J.P. AND JEFF J. DAWSON.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Ini
Total Metals Analysis	---			-				
ICP Screen, ICF				EPA	n/a			
Aluminum	0.13		mg/L	EPA 6010		09/11	09/14	DFI
Antimony	0.10	U	mg/L	EPA 6010		09/11	09/14	DFI
Arsenic	0.10	U	mg/L	EPA 6010		09/11	09/14	DFI
Barium	0.46		mg/L	EPA 6010		09/11	09/14	DFI
Beryllium	0.050	U	mg/L	EPA 6010		09/11	09/14	DFI
Cadmium	0.050	U	mg/L	EPA 6010		09/11	09/14	DFI
Calcium	25		mg/L	EPA 6010		09/11	09/14	DFI
Chromium	0.050	U	mg/L	EPA 6010		09/11	09/14	DFI
Cobalt	0.10	U	mg/L	EPA 6010		09/11	09/14	DFI
Copper	0.050	U	mg/L	EPA 6010		09/11	09/14	DFI
Iron	1.3		mg/L	EPA 6010		09/11	09/14	DFI
Lead	0.10		mg/L	EPA 6010		09/11	09/14	DFI
Magnesium	9.9		mg/L	EPA 6010		09/11	09/14	DFI
Manganese	0.090		mg/L	EPA 6010		09/11	09/14	DFI
Molybdenum	0.050	U	mg/L	EPA 6010		09/11	09/14	DFI
Nickel	0.050	U	mg/L	EPA 6010		09/11	09/14	DFI
Potassium	5.0	U	mg/L	EPA 6010		09/11	09/14	DFI
Selenium	0.10	U	mg/L	EPA 6010		09/11	09/14	DFI
Silver	0.050	U	mg/L	EPA 6010		09/11	09/14	DFI
Sodium	19		mg/L	EPA 6010		09/11	09/14	DFI
Thallium	0.0050	U	mg/L	EPA 7841		09/10	09/13	KAV
Vanadium	0.050	U	mg/L	EPA 6010		09/11	09/14	DFI
Zinc	0.050	U	mg/L	EPA 6010		09/11	09/14	DFI
Dissolved Metals Analys	---			-				
ICP Screen, ICF				EPA	n/a			
Aluminum	0.11		mg/L	EPA 6010		09/11	09/14	DFI
Antimony	0.10	U	mg/L	EPA 6010		09/11	09/14	DFI
Arsenic	0.10	U	mg/L	EPA 6010		09/11	09/14	DFI
Barium	0.44		mg/L	EPA 6010		09/11	09/14	DFI
Beryllium	0.050	U	mg/L	EPA 6010		09/11	09/14	DFI
Cadmium	0.050	U	mg/L	EPA 6010		09/11	09/14	DFI
Calcium	27		mg/L	EPA 6010		09/11	09/14	DFI
Chromium	0.050	U	mg/L	EPA 6010		09/11	09/14	DFI
Cobalt	0.10	U	mg/L	EPA 6010		09/11	09/14	DFI
Copper	0.050	U	mg/L	EPA 6010		09/11	09/14	DFI



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ENVIRONMENTAL SERVICES IN ALASKA, COLORADO, UTAH, ILLINOIS, OHIO, MARYLAND, WEST VIRGINIA, NEW JERSEY, SOUTH CAROLINA



COMMERCIAL TESTING & ENGINEERING CO.
ENVIRONMENTAL LABORATORY SERVICES

REPORT of ANALYSIS

Chemlab Ref.# :93.4511-7
Client Sample ID :LIS-LF01-SW06 CAPE LIS
Matrix :WATER

5633 B STREET
ANCHORAGE, AK 99518
TEL: (907) 562-2343
FAX: (907) 561-5301

Iron	0.72		mg/L	EPA 6010	09/11	09/14	DEF
Lead	0.10	U	mg/L	EPA 6010	09/11	09/14	DEF
Magnesium	10		mg/L	EPA 6010	09/11	09/14	DEF
Manganese	0.050	U	mg/L	EPA 6010	09/11	09/14	DEF
Molybdenum	0.050	U	mg/L	EPA 6010	09/11	09/14	DEF
Nickel	0.050	U	mg/L	EPA 6010	09/11	09/14	DEF
Potassium	5.0	U	mg/L	EPA 6010	09/11	09/14	DEF
Selenium	0.10	U	mg/L	EPA 6010	09/11	09/14	DEF
Silver	0.050	U	mg/L	EPA 6010	09/11	09/14	DEF
Sodium	18		mg/L	EPA 6010	09/11	09/14	DEF
Thallium	0.0050	U	mg/L	EPA 7841	09/10	09/13	KA
Vanadium	0.050	U	mg/L	EPA 6010	09/11	09/14	DEF
Zinc	0.050	U	mg/L	EPA 6010	09/11	09/14	DEF

* See Special Instructions Above

** See Sample Remarks Above

U = Undetected, Reported value is the practical quantification limit.

D = Secondary dilution.

UA = Unavailable

NA = Not Analyzed

LT = Less Than

GT = Greater Than



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ENVIRONMENTAL SERVICES IN ALASKA, COLORADO, UTAH, ILLINOIS, OHIO, MARYLAND, WEST VIRGINIA, NEW JERSEY, SOUTH CAROLINA



COMMERCIAL TESTING & ENGINEERING CO.

ENVIRONMENTAL LABORATORY SERVICES

REPORT of ANALYSIS

Chemlab Ref.# :93.4514-15
Client Sample ID :LIS-LF01-SW06 CAPE LIS
Matrix :WATER

5633 B STREET
ANCHORAGE, AK 99518
TEL: (907) 562-2343
FAX: (907) 561-5301

Client Name :ICF KAISER ENGINEERING
Ordered By :RAY MORRIS
Project Name :DEW LINE RI/FS CAPE LIS
Project# :41096-412-01
PWSID :UA

WORK Order :70395
Report Completed :10/27/93
Collected :08/31/93 @ 15:10 hrs.
Received :09/01/93 @ 12:00 hrs.
Technical Director:STEPHEN C. EDE
Released By : *C. Hunter*

Sample Remarks: SAMPLE COLLECTED BY: JEFF J. DAWSON AND J.P.

Parameter	QC		Method	Allowable Limits	Ext. Date	Anal Date	Init
	Results	Qual Units					
TOC, Nonpurgable			EPA 9060	n/a			
...TOC Range	31.1-32.9	mg/L	EPA 9060			09/15	CMR
...TOC Concentration	32.1	mg/L	EPA 9060			09/15	CMR

* See Special Instructions Above
** See Sample Remarks Above
U = Undetected, Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than



Member of the SGS Group (Société Générale de Surveillance)

ENVIRONMENTAL SERVICES IN ALASKA, COLORADO, UTAH, ILLINOIS, OHIO, MARYLAND, WEST VIRGINIA, NEW JERSEY, SOUTH CAROLINA



COMMERCIAL TESTING & ENGINEERING CO.

ENVIRONMENTAL LABORATORY SERVICES

REPORT of ANALYSIS

Chemlab Ref.# :93.4512-10
Client Sample ID :LIS-LF01-SW07 CAPE LIS
Matrix :WATER

5633 B STREET
ANCHORAGE, AK 99518
TEL: (907) 562-2343
FAX: (907) 561-5301

Client Name :ICF KAISER ENGINEERING
Ordered By :RAY MORRIS
Project Name :DEW LINE RI/FS CAPE LIS
Project# :41096-412-01
PWSID :UA

WORK Order :70391
Report Completed :11/03/93
Collected :08/31/93 @ 15:15 hrs
Received :09/01/93 @ 12:00 hrs
Technical Director:STEPHEN C. EDE
Released By : *C. J. J. J.*

Sample Remarks: SAMPLE COLLECTED BY: JEFF J. DAWSON AND J.P. HOLDING EXCEEDED ON 8270, NOT ANALYZED AS PER CLIENT.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Volatile Organics				EPA 8260				
Benzene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
Bromobenzene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
Bromochloromethane	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
Bromodichloromethane	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
Bromoform	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
Bromomethane	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
n-Butylbenzene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
sec-Butylbenzene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
tert-Butylbenzene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
Carbon Tetrachloride	0.0014		mg/L	EPA 8260		09/04	09/04	SGM
Chlorobenzene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
Chloroethane	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
Chloroform	0.0024		mg/L	EPA 8260		09/04	09/04	SGM
Chloromethane	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
2-Chlorotoluene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
4-Chlorotoluene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
Dibromochloromethane	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
1,2-Dibromo3Chloropropane	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
1,2-Dibromoethane	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
Dibromomethane	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
1,2-Dichlorobenzene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
1,3-Dichlorobenzene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
1,4-Dichlorobenzene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
Dichlorodifluoromethane	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
1,1-Dichloroethane	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
1,2-Dichloroethane	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
1,1-Dichloroethene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
cis-1,2-Dichloroethene	0.0015		mg/L	EPA 8260		09/04	09/04	SGM
trans1,2-Dichloroethene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
1,2-Dichloropropane	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
1,3-Dichloropropane	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
2,2-Dichloropropane	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
1,1-Dichloropropene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
Ethylbenzene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
Hexachlorobutadiene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
Isopropylbenzene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM



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COMMERCIAL TESTING & ENGINEERING CO.
ENVIRONMENTAL LABORATORY SERVICES

REPORT of ANALYSIS

Chemlab Ref.# :93.4512-10
Client Sample ID :LIS-LF01-SW07 CAPE LIS
Matrix :WATER

5633 B STREET
ANCHORAGE, AK 99518
TEL: (907) 562-2343
FAX: (907) 561-5301

p-Isopropyltoluene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
Methylene Chloride	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
Napthalene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
n-Propylbenzene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
Styrene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
1112-Tetrachloroethane	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
1122-Tetrachloroethane	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
Tetrachloroethene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
Toluene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
1,2,3-Trichlorobenzene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
1,2,4-Trichlorobenzene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
1,1,1-Trichloroethane	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
1,1,2-Trichloroethane	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
Trichloroethene	0.0042		mg/L	EPA 8260		09/04	09/04	SGM
Trichlorofluoromethane	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
1,2,3-Trichloropropane	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
1,2,4-Trimethylbenzene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
1,3,5-Trimethylbenzene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
Vinyl Chloride	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
p+m-Xylene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
o-Xylene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
Residue, Non-Filterable	36		mg/L	EPA 160.2		09/07	09/07	
Residue, Filterable(TDS)	245		mg/L	EPA 160.1	500	09/20	09/21	

* See Special Instructions Above

** See Sample Remarks Above

U = Undetected, Reported value is the practical quantification limit.

D = Secondary dilution.

UA = Unavailable

NA = Not Analyzed

LT = Less Than

GT = Greater Than



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ENVIRONMENTAL SERVICES IN ALASKA, COLORADO, UTAH, ILLINOIS, OHIO, MARYLAND, WEST VIRGINIA, NEW JERSEY, SOUTH CAROLINA



COMMERCIAL TESTING & ENGINEERING CO.
ENVIRONMENTAL LABORATORY SERVICES

REPORT of ANALYSIS

Chemlab Ref.# :93.4511-8
Client Sample ID :LIS-LF01-SW07 CAPE LIS
Matrix :WATER

5633 B STREET
ANCHORAGE, AK 99518
TEL: (907) 562-2343
FAX: (907) 561-5301

Client Name :ICF KAISER ENGINEERING
Ordered By :RAY MORRIS
Project Name :DEW LINE RI/FS CAPE LIS
Project# :41096-412-01
PWSID :UA

WORK Order :70389
Report Completed :09/22/93
Collected :08/31/93 @ 15:15 hrs
Received :09/01/93 @ 12:00 hrs
Technical Director:STEPHEN C. EDE
Released By : *[Signature]*

Sample Remarks: SAMPLE COLLECTED BY: J.P. AND JEFF J. DAWSON.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
<hr/>								
Total Metals Analysis	---			-				
ICP Screen, ICF				EPA	n/a			
Aluminum	0.15		mg/L	EPA 6010		09/11	09/14	DFL
Antimony	0.10	U	mg/L	EPA 6010		09/11	09/14	DFL
Arsenic	0.10	U	mg/L	EPA 6010		09/11	09/14	DFL
Barium	0.49		mg/L	EPA 6010		09/11	09/14	DFL
Beryllium	0.050	U	mg/L	EPA 6010		09/11	09/14	DFL
Cadmium	0.050	U	mg/L	EPA 6010		09/11	09/14	DFL
Calcium	28		mg/L	EPA 6010		09/11	09/14	DFL
Chromium	0.050	U	mg/L	EPA 6010		09/11	09/14	DFL
Cobalt	0.10	U	mg/L	EPA 6010		09/11	09/14	DFL
Copper	0.050	U	mg/L	EPA 6010		09/11	09/14	DFL
Iron	4.0		mg/L	EPA 6010		09/11	09/14	DFL
Lead	0.10	U	mg/L	EPA 6010		09/11	09/14	DFL
Magnesium	10		mg/L	EPA 6010		09/11	09/14	DFL
Manganese	0.16		mg/L	EPA 6010		09/11	09/14	DFL
Molybdenum	0.050	U	mg/L	EPA 6010		09/11	09/14	DFL
Nickel	0.050	U	mg/L	EPA 6010		09/11	09/14	DFL
Potassium	5.0	U	mg/L	EPA 6010		09/11	09/14	DFL
Selenium	0.10	U	mg/L	EPA 6010		09/11	09/14	DFL
Silver	0.050	U	mg/L	EPA 6010		09/11	09/14	DFL
Sodium	18		mg/L	EPA 6010		09/11	09/14	DFL
Thallium	0.0050	U	mg/L	EPA 7841		09/10	09/13	KAW
Vanadium	0.050	U	mg/L	EPA 6010		09/11	09/14	DFL
Zinc	0.050	U	mg/L	EPA 6010		09/11	09/14	DFL
<hr/>								
Dissolved Metals Analys	----			-				
ICP Screen, ICF				EPA	n/a			
Aluminum	0.13		mg/L	EPA 6010		09/11	09/14	DFL
Antimony	0.10	U	mg/L	EPA 6010		09/11	09/14	DFL
Arsenic	0.10	U	mg/L	EPA 6010		09/11	09/14	DFL
Barium	0.47		mg/L	EPA 6010		09/11	09/14	DFL
Beryllium	0.050	U	mg/L	EPA 6010		09/11	09/14	DFL
Cadmium	0.050	U	mg/L	EPA 6010		09/11	09/14	DFL
Calcium	23		mg/L	EPA 6010		09/11	09/14	DFL
Chromium	0.050	U	mg/L	EPA 6010		09/11	09/14	DFL
Cobalt	0.10	U	mg/L	EPA 6010		09/11	09/14	DFL
Copper	0.050	U	mg/L	EPA 6010		09/11	09/14	DFL



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COMMERCIAL TESTING & ENGINEERING CO.

ENVIRONMENTAL LABORATORY SERVICES

REPORT of ANALYSIS

Chemlab Ref.# :93.4511-8
Client Sample ID :LIS-LF01-SW07 CAPE LIS
Matrix :WATER

5633 B STREET
ANCHORAGE, AK 99518
TEL: (907) 562-2343
FAX: (907) 561-5301

Iron	2.0		mg/L	EPA 6010	09/11	09/14	DFI
Lead	0.10	U	mg/L	EPA 6010	09/11	09/14	DFI
Magnesium	9.0		mg/L	EPA 6010	09/11	09/14	DFI
Manganese	0.076		mg/L	EPA 6010	09/11	09/14	DFI
Molybdenum	0.050	U	mg/L	EPA 6010	09/11	09/14	DFI
Nickel	0.050	U	mg/L	EPA 6010	09/11	09/14	DFI
Potassium	5.0	U	mg/L	EPA 6010	09/11	09/14	DFI
Selenium	0.10	U	mg/L	EPA 6010	09/11	09/14	DFI
Silver	0.050	U	mg/L	EPA 6010	09/11	09/14	DFI
Sodium	17		mg/L	EPA 6010	09/11	09/14	DFI
Thallium	0.0050	U	mg/L	EPA 7841	09/10	09/13	KAV
Vanadium	0.050	U	mg/L	EPA 6010	09/11	09/14	DFI
Zinc	0.050	U	mg/L	EPA 6010	09/11	09/14	DFI

* See Special Instructions Above

** See Sample Remarks Above

U = Undetected, Reported value is the practical quantification limit.

D = Secondary dilution.

UA = Unavailable

NA = Not Analyzed

LT = Less Than

GT = Greater Than



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ENVIRONMENTAL SERVICES IN ALASKA, COLORADO, UTAH, ILLINOIS, OHIO, MARYLAND, WEST VIRGINIA, NEW JERSEY, SOUTH CAROLINA



COMMERCIAL TESTING & ENGINEERING CO.

ENVIRONMENTAL LABORATORY SERVICES

REPORT of ANALYSIS

Chemlab Ref.# :93.4514-16
Client Sample ID :LIS-LF01-SW07 CAPE LIS
Matrix :WATER

5633 B STREET
ANCHORAGE, AK 99518
TEL: (907) 562-2343
FAX: (907) 561-5301

Client Name :ICF KAISER ENGINEERING
Ordered By :RAY MORRIS
Project Name :DEW LINE RI/FS CAPE LIS
Project# :41096-412-01
PWSID :UA

WORK Order :70395
Report Completed :10/27/93
Collected :08/31/93 @ 15:15 hrs.
Received :09/01/93 @ 12:00 hrs.
Technical Director:STEPHEN C. EDE
Released By : *C. J. J. J.*

Sample Remarks: SAMPLE COLLECTED BY: JEFF J. DAWSON AND J.P.

Parameter	Results	QC Qual Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
TOC, Nonpurgable			EPA 9060	n/a			
...TOC Range	32.2-33.6	mg/L	EPA 9060			09/15	CMR
...TOC Concentration	32.9	mg/L	EPA 9060			09/15	CMR

* See Special Instructions Above
See Sample Remarks Above
= Undetected, Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than



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ENVIRONMENTAL SERVICES IN ALASKA, COLORADO, UTAH, ILLINOIS, OHIO, MARYLAND, WEST VIRGINIA, NEW JERSEY, SOUTH CAROLINA

COMMERCIAL TESTING & ENGINEERING CO. ENVIRONMENTAL LABORATORY SERVICES

REPORT OF ANALYSIS

Chemlab Ref.# :93.4727-4
Client Sample ID :LIS-LF01-2SW08
Matrix :WATER

5533 B STREET
ANCHORAGE, AK 99518
TEL: (907) 562-2343
FAX: (907) 551-5301

Client Name :ICF KAISER ENGINEERING
Ordered By :RAY MORRIS
Project Name :DEW LINE RI/FS CAPE LISB.
Project# :41096-412-01
PWSID :UA

WORK Order :70811
Report Completed :10/29/93
Collected :09/09/93 @ 17:00 hr:
Received :09/10/93 @ 15:55 hr:
Technical Director:STEPHEN C. EDE
Released By :

Sample Remarks: SAMPLE COLLECTED BY: ALEX POLANSKY.

Parameter	QC			Method	Allowable		Ext. Date	Anal Date	Init
	Results	Qual	Units		Limits				
Volatile Organics				EPA 8260					
Benzene	0.0012		mg/L	EPA 8260	(.5)-11.1		09/21	09/21	MCF
Bromobenzene	0.0010	U	mg/L	EPA 8260			09/21	09/21	MCF
Bromochloromethane	0.0010	U	mg/L	EPA 8260			09/21	09/21	MCF
Bromodichloromethane	0.0010	U	mg/L	EPA 8260			09/21	09/21	MCF
Bromoform	0.0010	U	mg/L	EPA 8260			09/21	09/21	MCF
Bromomethane	0.0010	U	mg/L	EPA 8260			09/21	09/21	MCF
n-Butylbenzene	0.0010	U	mg/L	EPA 8260			09/21	09/21	MCF
sec-Butylbenzene	0.0010	U	mg/L	EPA 8260			09/21	09/21	MCF
tert-Butylbenzene	0.0010	U	mg/L	EPA 8260			09/21	09/21	MCF
Carbon Tetrachloride	0.089	D	mg/L	EPA 8260			09/22	09/22	MCF
Chlorobenzene	0.0010	U	mg/L	EPA 8260			09/21	09/21	MCF
Chloroethane	0.0010	U	mg/L	EPA 8260			09/21	09/21	MCF
Chloroform	0.016		mg/L	EPA 8260			09/21	09/21	MCF
Chloromethane	0.0010	U	mg/L	EPA 8260			09/21	09/21	MCF
2-Chlorotoluene	0.0010	U	mg/L	EPA 8260			09/21	09/21	MCF
4-Chlorotoluene	0.0010	U	mg/L	EPA 8260			09/21	09/21	MCF
Dibromochloromethane	0.0010	U	mg/L	EPA 8260			09/21	09/21	MCF
1,2-Dibromoethane	0.0010	U	mg/L	EPA 8260			09/21	09/21	MCF
Dibromomethane	0.0010	U	mg/L	EPA 8260			09/21	09/21	MCF
1,2-Dichlorobenzene	0.0010	U	mg/L	EPA 8260			09/21	09/21	MCF
1,3-Dichlorobenzene	0.0010	U	mg/L	EPA 8260			09/21	09/21	MCF
1,4-Dichlorobenzene	0.0010	U	mg/L	EPA 8260			09/21	09/21	MCF
Dichlorodifluoromethane	0.0010	U	mg/L	EPA 8260			09/21	09/21	MCF
1,1-Dichloroethane	0.0010	U	mg/L	EPA 8260			09/21	09/21	MCF
1,2-Dichloroethane	0.0010	U	mg/L	EPA 8260			09/21	09/21	MCF
1,1-Dichloroethene	0.0010	U	mg/L	EPA 8260			09/21	09/21	MCF
cis-1,2-Dichloroethene	0.0010	U	mg/L	EPA 8260			09/21	09/21	MCF
trans-1,2-Dichloroethene	0.0010	U	mg/L	EPA 8260			09/21	09/21	MCF
1,2-Dichloropropane	0.0010	U	mg/L	EPA 8260			09/21	09/21	MCF
1,3-Dichloropropane	0.0010	U	mg/L	EPA 8260			09/21	09/21	MCF
2,2-Dichloropropane	0.0010	U	mg/L	EPA 8260			09/21	09/21	MCF
1,1-Dichloropropene	0.0010	U	mg/L	EPA 8260			09/21	09/21	MCF
Ethylbenzene	0.0010	U	mg/L	EPA 8260			09/21	09/21	MCF
Hexachlorobutadiene	0.0010	U	mg/L	EPA 8260			09/21	09/21	MCF
Isopropylbenzene	0.0010	U	mg/L	EPA 8260			09/21	09/21	MCF
p-Isopropyltoluene	0.0010	U	mg/L	EPA 8260			09/21	09/21	MCF

3-30-94



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COMMERCIAL TESTING & ENGINEERING CO.
ENVIRONMENTAL LABORATORY SERVICES

REPORT OF ANALYSIS

Chemlab Ref.# :93.4727-4
Client Sample ID :LIS-LF01-2SW08
Matrix :WATER

5533 B STREET
ANCHORAGE, AK 99513
TEL: (907) 562-2343
FAX: (907) 561-3331

Qualification Comments

Methylene Chloride	0.0010	U	mg/L	EPA 8260	(55)-A1	09/21	09/21	MCH
Napthalene	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCH
n-Propylbenzene	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCH
Styrene	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCH
1112-Tetrachloroethane	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCH
1122-Tetrachloroethane	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCH
Tetrachloroethene	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCH
Toluene	0.0096		mg/L	EPA 8260		09/21	09/21	MCH
1,2,3-Trichlorobenzene	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCH
1,2,4-Trichlorobenzene	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCH
1,1,1-Trichloroethane	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCH
1,1,2-Trichloroethane	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCH
Trichloroethene	0.062		mg/L	EPA 8260		09/21	09/21	MCH
Trichlorofluoromethane	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCH
1,2,3-Trichloropropane	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCH
1,2,4-Trimethylbenzene	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCH
1,3,5-Trimethylbenzene	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCH
Vinyl Chloride	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCH
p+m-Xylene	0.0018		mg/L	EPA 8260		09/21	09/21	MCH
o-Xylene	0.0015		mg/L	EPA 8260		09/21	09/21	MCH

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3-30-94

* See Special Instructions Above
** See Sample Remarks Above
U = Undetected, Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than



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ENVIRONMENTAL SERVICES IN ALASKA, COLORADO, UTAH, ILLINOIS, OHIO, MARYLAND, WEST VIRGINIA, NEW JERSEY, SOUTH CAROLINA



COMMERCIAL TESTING & ENGINEERING CO.
ENVIRONMENTAL LABORATORY SERVICES

REPORT of ANALYSIS

Chemlab Ref.# :93.4729-1
Client Sample ID :LIS-LF01-2SW08 CAPE LISB.
Matrix :WATER

5633 B STREET
ANCHORAGE, AK 99518
TEL: (907) 562-2343
FAX: (907) 561-5301

Client Name :ICF KAISER ENGINEERING
Ordered By :RAY MORRIS
Project Name :DEW LINE RI/FS CAPE LISB.
Project# :41096-412-01
PWSID :UA

WORK Order :70820
Report Completed :11/04/93
Collected :09/09/93 @ 17:00 hrs
Received :09/10/93 @ 15:55 hrs
Technical Director:STEPHEN C. EDE
Released By : *[Signature]*

Sample Remarks: SAMPLE COLLECTED BY: ALEX POLANSKY.

Qualifier/Comments

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Semivolatile Organics				EPA 8270				
Phenol	0.010	U	mg/L	EPA 8270		09/17	10/23	GV
bis(2-Chloroethyl)ether	0.010	U	mg/L	EPA 8270	R/F.1	09/17	10/23	GV
2-Chlorophenol	0.010	U	mg/L	EPA 8270		09/17	10/23	GV
1,3-Dichlorobenzene	0.010	U	mg/L	EPA 8270	R/F.1	09/17	10/23	GV
1,4-Dichlorobenzene	0.010	U	mg/L	EPA 8270	R/F.1	09/17	10/23	GV
Benzyl Alcohol	0.010	U	mg/L	EPA 8270	R/F.1	09/17	10/23	GV
1,2-Dichlorobenzene	0.010	U	mg/L	EPA 8270	R/F.1	09/17	10/23	GV
2-Methylphenol	0.010	U	mg/L	EPA 8270		09/17	10/23	GV
bis(2-Chloroisopropyl)e	0.010	U	mg/L	EPA 8270	R/F.1	09/17	10/23	GV
4-Methylphenol	0.010	U	mg/L	EPA 8270		09/17	10/23	GV
n-Nitroso-di-n-Propylam	0.010	U	mg/L	EPA 8270	R/F.1	09/17	10/23	GV
Hexachloroethane	0.010	U	mg/L	EPA 8270	R/F.1	09/17	10/23	GV
Nitrobenzene	0.010	U	mg/L	EPA 8270	R/F.1	09/17	10/23	GV
Isophorone	0.010	U	mg/L	EPA 8270	R/F.1	09/17	10/23	GV
2-Nitrophenol	0.010	U	mg/L	EPA 8270		09/17	10/23	GV
2,4-Dimethylphenol	0.010	U	mg/L	EPA 8270		09/17	10/23	GV
Benzoic Acid	0.010	U	mg/L	EPA 8270		09/17	10/23	GV
bis(2-Chloroethoxy)Meth	0.010	U	mg/L	EPA 8270	R/F.1	09/17	10/23	GV
2,4-Dichlorophenol	0.010	U	mg/L	EPA 8270		09/17	10/23	GV
1,2,4-Trichlorobenzene	0.010	U	mg/L	EPA 8270	R/F.1	09/17	10/23	GV
Naphthalene	0.010	U	mg/L	EPA 8270	R/F.1	09/17	10/23	GV
4-Chloroaniline	0.010	U	mg/L	EPA 8270	R/F.1	09/17	10/23	GV
Hexachlorobutadiene	0.010	U	mg/L	EPA 8270	R/F.1	09/17	10/23	GV
4-Chloro-3-Methylphenol	0.010	U	mg/L	EPA 8270		09/17	10/23	GV
2-Methylnaphthalene	0.010	U	mg/L	EPA 8270	R/F.1	09/17	10/23	GV
Hexachlorocyclopentadie	0.010	U	mg/L	EPA 8270	R/F.1	09/17	10/23	GV
2,4,6-Trichlorophenol	0.010	U	mg/L	EPA 8270		09/17	10/23	GV
2,4,5-Trichlorophenol	0.010	U	mg/L	EPA 8270		09/17	10/23	GV
2-Chloronaphthalene	0.010	U	mg/L	EPA 8270	R/F.1	09/17	10/23	GV
2-Nitroaniline	0.010	U	mg/L	EPA 8270	R/F.1	09/17	10/23	GV
Dimethylphthalate	0.010	U	mg/L	EPA 8270	R/F.1	09/17	10/23	GV
Acenaphthylene	0.010	U	mg/L	EPA 8270	R/F.1	09/17	10/23	GV
2,6-Dinitrotoluene	0.010	U	mg/L	EPA 8270	R/F.1	09/17	10/23	GV
3-Nitroaniline	0.010	U	mg/L	EPA 8270	R/F.1	09/17	10/23	GV
Acenaphthene	0.010	U	mg/L	EPA 8270	R/F.1	09/17	10/23	GV
2,4-Dinitrophenol	0.010	U	mg/L	EPA 8270		09/17	10/23	GV
4-Nitrophenol	0.010	U	mg/L	EPA 8270		09/17	10/23	GV

[Handwritten signature]
3/9/94



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COMMERCIAL TESTING & ENGINEERING CO.

ENVIRONMENTAL LABORATORY SERVICES

REPORT of ANALYSIS *SLC*

Chemlab Ref.# :93.4729-1
Client Sample ID :LIS-LF01-2SW08 CAPE LISB.
Matrix :WATER

5633 B STREET
ANCHORAGE, AK 99518
TEL: (907) 562-2343
FAX: (907) 561-5301

Dibenzofuran	0.010	U	mg/L	EPA 8270	R/F.1	09/17 10/23	GV
2,4-Dinitrotoluene	0.010	U	mg/L	EPA 8270	R/F.1	09/17 10/23	GV
Diethylphthalate	0.010	U	mg/L	EPA 8270	R/F.1	09/17 10/23	GV
4-Chlorophenyl-Phenylet	0.010	U	mg/L	EPA 8270	R/F.1	09/17 10/23	GV
Fluorene	0.010	U	mg/L	EPA 8270	R/F.1	09/17 10/23	GV
4-Nitroaniline	0.010	U	mg/L	EPA 8270	R/F.1	09/17 10/23	GV
4,6-Dinitro-2-Methylphe	0.010	U	mg/L	EPA 8270	R/F.1	09/17 10/23	GV
n-Nitrosodiphenylamine	0.010	U	mg/L	EPA 8270	R/F.1	09/17 10/23	GV
4-Bromophenyl-Phenyleth	0.010	U	mg/L	EPA 8270	R/F.1	09/17 10/23	GV
Hexachlorobenzene	0.010	U	mg/L	EPA 8270	R/F.1	09/17 10/23	GV
Pentachlorophenol	0.010	U	mg/L	EPA 8270	R/F.1	09/17 10/23	GV
Phenanthrene	0.010	U	mg/L	EPA 8270	R/F.1	09/17 10/23	GV
Anthracene	0.010	U	mg/L	EPA 8270	R/F.1	09/17 10/23	GV
di-n-Butylphthalate	0.010	U	mg/L	EPA 8270	R/F.1	09/17 10/23	GV
Fluoranthene	0.010	U	mg/L	EPA 8270	R/F.1	09/17 10/23	GV
Pyrene	0.010	U	mg/L	EPA 8270	R/F.1	09/17 10/23	GV
Butylbenzylphthalate	0.010	U	mg/L	EPA 8270	R/F.1	09/17 10/23	GV
3,3-Dichlorobenzidine	0.010	U	mg/L	EPA 8270	R/F.1	09/17 10/23	GV
Benzo(a)Anthracene	0.010	U	mg/L	EPA 8270	R/F.1	09/17 10/23	GV
Chrysene	0.010	U	mg/L	EPA 8270	R/F.1	09/17 10/23	GV
bis(2-Ethylhexyl)Phthal	0.010	U	mg/L	EPA 8270	R/F.1	09/17 10/23	GV
di-n-Octylphthalate	0.010	U	mg/L	EPA 8270	R/F.1	09/17 10/23	GV
Benzo(b)Fluoranthene	0.010	U	mg/L	EPA 8270	R/F.1	09/17 10/23	GV
Benzo(k)Fluoranthene	0.010	U	mg/L	EPA 8270	R/F.1	09/17 10/23	GV
Benzo(a)Pyrene	0.010	U	mg/L	EPA 8270	R/F.1	09/17 10/23	GV
Indeno(1,2,3-cd)Pyrene	0.010	U	mg/L	EPA 8270	R/F.1	09/17 10/23	GV
Dibenz(a,h)Anthracene	0.010	U	mg/L	EPA 8270	R/F.1	09/17 10/23	GV
Benzo(g,h,i)Perylene	0.010	U	mg/L	EPA 8270	R/F.1	09/17 10/23	GV

DFM
3/1/94

* See Special Instructions Above
* See Sample Remarks Above
U = Undetected, Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than



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ENVIRONMENTAL SERVICES IN ALASKA, COLORADO, UTAH, ILLINOIS, OHIO, MARYLAND, WEST VIRGINIA, NEW JERSEY, SOUTH CAROLINA



CT&E Environmental Services Inc.

Laboratory Division

ICF

0015 1995

CT&E Ref.# 95.3550-1
Matrix WATER
Client Sample ID LISBURNE LIS-LF01-6SW12

Laboratory Analysis Report

PROVEN

Client Name ICF KAISER ENGINEERING
Ordered By JEFF DAWSON
Project Name CAPE LISBURNE IRA
Project# 41096614 02
PWSID UA

WORK Order 17377
Printed Date 09/28/95 @ 13:44 hrs.
Collected Date 08/21/95 @ 11:33 hrs.
Received Date 08/22/95 @ 09:00 hrs.

Technical Director STEPHEN C. EDE

Released By *Shane Patten*

Sample Remarks: SAMPLE COLLECTED BY: JEFF J. DAWSON. EPH: POSSIBLE WEATHERED MIDDLE DISTILLATE. HOMOLOGOUS SERIES STARTING AT C23 CONTRIBUTING TO RECOVERY. (APPROX. 10%).

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Volatile Organic Chem				EPA 502.2/524.2				
1,1,1 Trichloroethane	0.0025	U	mg/L	EPA 502.2/524.2	0.200	08/25/95	08/25/95	JBH
1,1 Dichloroethylene	0.0025	U	mg/L	EPA 502.2/524.2	0.0070	08/25/95	08/25/95	JBH
1,2 Dichloroethane	0.0025	U	mg/L	EPA 502.2/524.2	0.0050	08/25/95	08/25/95	JBH
Carbon Tetrachloride	0.0025	U	mg/L	EPA 502.2/524.2	0.0050	08/25/95	08/25/95	JBH
Vinyl Chloride	0.0025	U	mg/L	EPA 502.2/524.2	0.0020	08/25/95	08/25/95	JBH
Benzene	0.0025	U	mg/L	EPA 502.2/524.2	0.0050	08/25/95	08/25/95	JBH
1,4-Dichlorobenzene	0.0025	U	mg/L	EPA 502.2/524.2	0.0750	08/25/95	08/25/95	JBH
Trichloroethylene	0.014	D	mg/L	EPA 502.2/524.2	0.0050	08/25/95	08/25/95	JBH
TTHM	0.0062	D	mg/L	EPA 502.2/524.2	0.100	08/25/95	08/25/95	JBH
Bromobenzene	0.0025	U	mg/L	EPA 502.2/524.2		08/25/95	08/25/95	JBH
Bromochloromethane	0.0025	U	mg/L	EPA 502.2/524.2		08/25/95	08/25/95	JBH
Bromodichloromethane	0.0025	U	mg/L	EPA 502.2/524.2		08/25/95	08/25/95	JBH
Bromoform	0.0025	U	mg/L	EPA 502.2/524.2		08/25/95	08/25/95	JBH
Bromomethane	0.0025	U	mg/L	EPA 502.2/524.2		08/25/95	08/25/95	JBH
n-Butylbenzene	0.0025	U	mg/L	EPA 502.2/524.2		08/25/95	08/25/95	JBH
sec-Butylbenzene	0.0025	U	mg/L	EPA 502.2/524.2		08/25/95	08/25/95	JBH
tert-Butylbenzene	0.0025	U	mg/L	EPA 502.2/524.2		08/25/95	08/25/95	JBH
Chlorobenzene	0.0025	U	mg/L	EPA 502.2/524.2		08/25/95	08/25/95	JBH
Chlorodibromomethane	0.0025	U	mg/L	EPA 502.2/524.2		08/25/95	08/25/95	JBH
Chloroethane	0.0025	U	mg/L	EPA 502.2/524.2		08/25/95	08/25/95	JBH
Chloroform	0.0062	D	mg/L	EPA 502.2/524.2		08/25/95	08/25/95	JBH
Chloromethane	0.0025	U	mg/L	EPA 502.2/524.2		08/25/95	08/25/95	JBH
1,2-Dibromo-3-Chloropropa	0.0025	U	mg/L	EPA 502.2/524.2		08/25/95	08/25/95	JBH
o-Chlorotoluene	0.0025	U	mg/L	EPA 502.2/524.2		08/25/95	08/25/95	JBH
p-Chlorotoluene	0.0025	U	mg/L	EPA 502.2/524.2		08/25/95	08/25/95	JBH
Dibromomethane	0.0025	U	mg/L	EPA 502.2/524.2		08/25/95	08/25/95	JBH
m-Dichlorobenzene	0.0025	U	mg/L	EPA 502.2/524.2		08/25/95	08/25/95	JBH
o-Dichlorobenzene	0.0025	U	mg/L	EPA 502.2/524.2		08/25/95	08/25/95	JBH
Dichlorodifluoromethane	0.0025	U	mg/L	EPA 502.2/524.2		08/25/95	08/25/95	JBH
1,1-Dichloroethane	0.0025	U	mg/L	EPA 502.2/524.2		08/25/95	08/25/95	JBH
cis-1,2-Dichloroethylen	0.0028	D	mg/L	EPA 502.2/524.2		08/25/95	08/25/95	JBH
trans-1,2-Dichloroethyl	0.0025	U	mg/L	EPA 502.2/524.2		08/25/95	08/25/95	JBH
Dichloromethane	0.0025	U	mg/L	EPA 502.2/524.2		08/25/95	08/25/95	JBH
1,2-Dichloropropane	0.0025	U	mg/L	EPA 502.2/524.2		08/25/95	08/25/95	JBH

150 520 95

200 W. Potter Drive, Anchorage, AK 99518-1605 — Tel: (907) 562-2343 Fax: (907) 561-5301

ENVIRONMENTAL FACILITIES IN ALASKA, CALIFORNIA, FLORIDA, ILLINOIS, MARYLAND, MICHIGAN, MISSOURI, NEW JERSEY, OHIO, WEST VIRGINIA



CT&E Environmental Services Inc.

CT&E Ref.# 95.3550-1
Matrix WATER
Client Sample ID LISBURNE LIS-LF01-6SW12

1,3-Dichloropropane	0.0025	U	mg/L	EPA 502.2/524.2	08/25/95	08/25/95	JBH
2,2-Dichloropropane	0.0025	U	mg/L	EPA 502.2/524.2	08/25/95	08/25/95	JBH
1,1-Dichloropropene	0.0025	U	mg/L	EPA 502.2/524.2	08/25/95	08/25/95	JBH
1,3-Dichloropropene	0.0025	U	mg/L	EPA 502.2/524.2	08/25/95	08/25/95	JBH
Ethylbenzene	0.0025	U	mg/L	EPA 502.2/524.2	08/25/95	08/25/95	JBH
Ethylene Dibromide (EDB)	0.0025	U	mg/L	EPA 502.2/524.2	08/25/95	08/25/95	JBH
Fluorotrichloromethane	0.0025	U	mg/L	EPA 502.2/524.2	08/25/95	08/25/95	JBH
Hexachlorobutadiene	0.0025	U	mg/L	EPA 502.2/524.2	08/25/95	08/25/95	JBH
Isopropylbenzene	0.0025	U	mg/L	EPA 502.2/524.2	08/25/95	08/25/95	JBH
p-Isopropyltoluene	0.0025	U	mg/L	EPA 502.2/524.2	08/25/95	08/25/95	JBH
Napthalene	0.0025	U	mg/L	EPA 502.2/524.2	08/25/95	08/25/95	JBH
n-Propylbenzene	0.0025	U	mg/L	EPA 502.2/524.2	08/25/95	08/25/95	JBH
Styrene	0.0025	U	mg/L	EPA 502.2/524.2	08/25/95	08/25/95	JBH
1112-Tetrachloroethane	0.0025	U	mg/L	EPA 502.2/524.2	08/25/95	08/25/95	JBH
1122-Tetrachloroethane	0.0025	U	mg/L	EPA 502.2/524.2	08/25/95	08/25/95	JBH
Tetrachloroethylene	0.0025	U	mg/L	EPA 502.2/524.2	08/25/95	08/25/95	JBH
Toluene	0.0025	U	mg/L	EPA 502.2/524.2	08/25/95	08/25/95	JBH
1,2,3-Trichlorobenzene	0.0025	U	mg/L	EPA 502.2/524.2	08/25/95	08/25/95	JBH
1,2,4-Trichlorobenzene	0.0025	U	mg/L	EPA 502.2/524.2	08/25/95	08/25/95	JBH
1,1,2-Trichloroethane	0.0025	U	mg/L	EPA 502.2/524.2	08/25/95	08/25/95	JBH
1,2,3-Trichloropropane	0.0025	U	mg/L	EPA 502.2/524.2	08/25/95	08/25/95	JBH
1,2,4-Trimethylbenzene	0.0025	U	mg/L	EPA 502.2/524.2	08/25/95	08/25/95	JBH
1,3,5-Trimethylbenzene	0.0025	U	mg/L	EPA 502.2/524.2	08/25/95	08/25/95	JBH
p & m Xylene	0.0025	U	mg/L	EPA 502.2/524.2	08/25/95	08/25/95	JBH
o-Xylene	0.0025	U	mg/L	EPA 502.2/524.2	08/25/95	08/25/95	JBH
Semivolatiles Organics				EPA 625 GC/MS			
Phenol	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
bis(2-Chloroethyl) Ether	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
2-Chlorophenol	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
1,3 Dichlorobenzene	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
1,4-Dichlorobenzene	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
Benzyl Alcohol	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
1,2-Dichlorobenzene	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
2-Methylphenol	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
bis(2-Chloroisopropyl) E	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
4-Methylphenol	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
n-Nitroso-Di-n-Propylam	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
Hexachloroethane	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
Nitrobenzene	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
Isophorone	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
2-Nitrophenol	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
2,4-Dimethylphenol	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
Benzoic Acid	0.022	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
bis(2-Chloroethoxy) Met	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
2,4-Dichlorophenol	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
1,2,4-Trichlorobenzene	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
Napthalene	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
4-Chloroaniline	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
Hexachlorobutadiene	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
4-Chloro-3-Methylphenol	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
2-Methylnapthalene	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM

**CT&E Environmental Services Inc.**

CT&E Ref.# 95.3550-1
Matrix WATER
Client Sample ID LISBURNE LIS-LF01-6SW12

Hexachlorocyclopentadie	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
2,4,6-Trichlorophenol	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
2,4,5-Trichlorophenol	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
2-Chloronaphthalene	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
2-Nitroaniline	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
Dimethylphthalate	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
Acenaphthylene	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
2,6-Dinitrotoluene	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
3-Nitroaniline	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
Acenaphthene	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
2,4-Dinitrophenol	0.022	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
4-Nitrophenol	0.022	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
Dibenzofuran	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
2,4-Dinitrotoluene	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
Diethylphthalate	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
4-Chlorophenyl-Phenyleth	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
Fluorene	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
4-Nitroaniline	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
4,6-Dinitro-2-Methylphe	0.011	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
N-Nitrosodiphenylamine	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
4-Bromophenyl-Phenyleth	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
Hexachlorobenzene	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
Pentachlorophenol	0.022	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
Benanthrene	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
Anthracene	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
di-n-Butylphthalate	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
Fluoranthene	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
Pyrene	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
Butylbenzylphthalate	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
3,3-Dichlorobenzidine	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
Benzo(a)Anthracene	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
Chrysene	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
bis(2-Ethylhexyl) Phthal	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
di-n-Octylphthalate	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
Benzo(b)Fluoranthene	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
Benzo(k)Fluoranthene	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
Benzo(a)Pyrene	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
Indeno(1,2,3-cd)Pyrene	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
Dibenz(a,h)Anthracene	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
Benzo(g,h,i)Perylene	0.005	U	mg/L	EPA 625 GC/MS	08/24/95	08/24/95	DSM
Diesel Range Organics	0.240		mg/L	AK 102.0 (2-93)	08/23/95	08/25/95	JDG
Gasoline Range Organics	0.020	U	mg/L	AK 101.0 (1-93)	08/23/95	08/23/95	MMP
PolychlorinatedBiphenyl	0.0010	U	mg/L	EPA 608	08/24/95	08/29/95	JLB
-----Aroclor	---						

See Special Instructions Above

See Sample Remarks Above

U = Undetected, Reported value is the practical quantification limit.

D = Secondary dilution.

UA = Unavailable

NA = Not Analyzed

LT = Less Than

GT = Greater Than



Commercial Testing & Engineering Co.

Environmental Laboratory Services

LABORATORY ANALYSIS REPORT

CT&E Ref.# 94.4762-2
Client Sample ID LIS-LF01-3W04 HIGH CONCENTRATIONS RRPH
Matrix SOIL

Client Name ICF KAISER ENGINEERING
Ordered By JEFF DAWSON
Project Name DEW LINE CAPE LISBURNE IRA
Project# 41096-514-02
PWSID UA

WORK Order 82360
Printed Date 11/02/94 @ 12:55 hrs
Collected Date 09/12/94 @ 13:30 hrs
Received Date 09/16/94 @ 11:00 hrs

Technical Director STEPHEN C. EDELL

Released By *Shane Patton*

Sample Remarks: SAMPLE COLLECTED BY: JEFF DAWSON. B- THIS FLAG IS USED WHEN AN ANALYTE IS FOUND IN THE ASSOCIATED BLANK AS WELL AS IN THE SAMPLE. J-INDICATES AN ANALYTE DETECTED BELOW THE CALIBRATION RANGE. FINAL RESULTS.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal. Date	Init
TCLP Extraction	---			SW 846 1311				
Organochlorine Pest&PCB				EPA 8080				
Aldrin	0.020	U	microg/L	EPA 8080		09/23/94	09/27/94	ECG
Alpha-BHC	0.070	U	microg/L	EPA 8080		09/23/94	09/27/94	ECG
Beta-BHC	0.020	U	microg/L	EPA 8080		09/23/94	09/27/94	ECG
Delta-BHC	0.020	U	microg/L	EPA 8080		09/23/94	09/27/94	ECG
Gamma-BHC	0.020	U	microg/L	EPA 8080		09/23/94	09/27/94	ECG
Chlordane	0.20	U	microg/L	EPA 8080		09/23/94	09/27/94	ECG
4,4'-DDD	0.020	U	microg/L	EPA 8080		09/23/94	09/27/94	ECG
4,4'-DDE	0.020	U	microg/L	EPA 8080		09/23/94	09/27/94	ECG
4,4'-DDT	0.020	U	microg/L	EPA 8080		09/23/94	09/27/94	ECG
Dieldrin	0.020	U	microg/L	EPA 8080		09/23/94	09/27/94	ECG
Endosulfan I	0.020	U	microg/L	EPA 8080		09/23/94	09/27/94	ECG
Endosulfan II	0.020	U	microg/L	EPA 8080		09/23/94	09/27/94	ECG
Endosulfan Sulfate	0.020	U	microg/L	EPA 8080		09/23/94	09/27/94	ECG
Endrin	0.070	U	microg/L	EPA 8080		09/23/94	09/27/94	ECG
Endrin Aldehyde	0.020	U	microg/L	EPA 8080		09/23/94	09/27/94	ECG
Heptachlor	0.030	U	microg/L	EPA 8080		09/23/94	09/27/94	ECG
Heptachlor Epoxide	0.020	U	microg/L	EPA 8080		09/23/94	09/27/94	ECG
Methoxychlor	0.020	U	microg/L	EPA 8080		09/23/94	09/27/94	ECG
Toxaphene	0.20	U	microg/L	EPA 8080		09/23/94	09/27/94	ECG
PCB-1016	0.060	U	mg/L	EPA 8080		09/23/94	09/27/94	DSM
PCB-1221	0.060	U	mg/L	EPA 8080		09/23/94	09/27/94	DSM
PCB-1232	0.060	U	mg/L	EPA 8080		09/23/94	09/27/94	DSM
PCB-1242	0.060	U	mg/L	EPA 8080		09/23/94	09/27/94	DSM
PCB-1248	0.060	U	mg/L	EPA 8080		09/23/94	09/27/94	DSM
PCB-1254	0.060	U	mg/L	EPA 8080		09/23/94	09/27/94	DSM
PCB-1260	0.060	U	mg/L	EPA 8080		09/23/94	09/27/94	DSM
Semivolatile Organics				EPA 8270				
Phenol	0.005	U	mg/L	EPA 8270		09/23/94	09/27/94	JHB
bis(2-Chloroethyl)ether	0.005	U	mg/L	EPA 8270		09/23/94	09/27/94	JHB
2-Chlorophenol	0.005	U	mg/L	EPA 8270		09/23/94	09/27/94	JHB
1,3-Dichlorobenzene	0.005	U	mg/L	EPA 8270		09/23/94	09/27/94	JHB
1,4-Dichlorobenzene	0.005	U	mg/L	EPA 8270		09/23/94	09/27/94	JHB

F-712/016/94

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ENVIRONMENTAL FACILITIES IN ALASKA, COLORADO, FLORIDA, ILLINOIS, MARYLAND, NEW JERSEY, OHIO, UTAH, WEST VIRGINIA



Commercial Testing & Engineering Co.

Environmental Laboratory Services

LABORATORY ANALYSIS REPORT

CT&E Ref.# 94.4762-2
Client Sample ID LIS-LF01-3W04 HIGH CONCENTRATIONS RRPB
Matrix SOIL

Benzyl Alcohol	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
1,2-Dichlorobenzene	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
2-Methylphenol	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
bis(2-Chloroisopropyl)e	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
4-Methylphenol	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
n-Nitroso-di-n-Propylam	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
Hexachloroethane	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
Nitrobenzene	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
Isophorone	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
2-Nitrophenol	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
2,4-Dimethylphenol	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
Benzoic Acid	0.020	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
bis(2-Chloroethoxy)Meth	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
2,4-Dichlorophenol	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
1,2,4-Trichlorobenzene	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
Naphthalene	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
4-Chloroaniline	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
Hexachlorobutadiene	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
4-Chloro-3-Methylphenol	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
2-Methylnaphthalene	0.0038	J	mg/L	EPA 8270	09/23/94	09/28/94	JBH
Hexachlorocyclopentadie	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
2,4,6-Trichlorophenol	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
4,5-Trichlorophenol	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
Chloronaphthalene	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
2-Nitroaniline	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
Dimethylphthalate	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
Acenaphthylene	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
2,6-Dinitrotoluene	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
3-Nitroaniline	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
Acenaphthene	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
2,4-Dinitrophenol	0.020	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
4-Nitrophenol	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
Dibenzofuran	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
2,4-Dinitrotoluene	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
Diethylphthalate	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
4-Chlorophenyl-Phenylet	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
Fluorene	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
4-Nitroaniline	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
4,6-Dinitro-2-Methylphe	0.020	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
n-Nitrosodiphenylamine	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
4-Bromophenyl-Phenyleth	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
Hexachlorobenzene	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
Pentachlorophenol	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
Phenanthrene	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
Anthracene	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
di-n-Butylphthalate	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
Fluoranthene	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
Pyrene	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
Butylbenzylphthalate	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
3,3-Dichlorobenzidine	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
benzo(a)Anthracene	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
rysene	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH

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ENVIRONMENTAL FACILITIES IN ALASKA, COLORADO, FLORIDA, ILLINOIS, MARYLAND, NEW JERSEY, OHIO, UTAH, WEST VIRGINIA



Commercial Testing & Engineering Co.

Environmental Laboratory Services

LABORATORY ANALYSIS REPORT

CT&E Ref.# 94.4762-2
Client Sample ID LIS-LF01-3W04 HIGH CONCENTRATIONS RRPB
Matrix SOIL

bis(2-Ethylhexyl) Phthal	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
di-n-Octylphthalate	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
Benzo(b) Fluoranthene	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
Benzo(k) Fluoranthene	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
Benzo(a) Pyrene	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
Indeno(1,2,3-cd) Pyrene	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
Dibenz(a,h) Anthracene	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH
Benzo(g,h,i) Perylene	0.005	U	mg/L	EPA 8270	09/23/94	09/28/94	JBH

TCLP Extraction	---			SW 846 1311	09/22/94		BJS	
TCLP Metals				EPA 1311				
Arsenic	0.0050	U	mg/L	EPA 7060/7061	5.0	09/23/94	09/26/94	CLC
Barium	1.7	D	mg/L	EPA 7080/6010	100.0	09/23/94	09/27/94	EMW
Cadmium	0.50	U	mg/L	EPA 7131/6010	1.0	09/23/94	09/27/94	EMW
Chromium	0.50	U	mg/L	EPA 7191/6010	5.0	09/23/94	09/27/94	EMW
Lead	1.9	D	mg/L	EPA 7421/6010	5.0	09/23/94	09/27/94	EMW
Mercury	0.002	U	mg/L	EPA 7470/7471	0.2	09/25/94	09/25/94	AFK
Selenium	0.0050	U	mg/L	EPA 7740/7741	1.0	09/23/94	09/26/94	CLC
Silver	0.1	U	mg/L	EPA 7760/6010	5.0	09/23/94	09/26/94	BJS

TCLP Extraction/ZHE	---		mg/L	EPA 1311				
Volatile Organics				EPA 8240				
Chloromethane	0.100	U	mg/L	EPA 8240		09/23/94	09/24/94	BLS
Bromomethane	0.100	U	mg/L	EPA 8240		09/23/94	09/24/94	BLS
Vinyl Chloride	0.100	U	mg/L	EPA 8240		09/23/94	09/24/94	BLS
Chloroethane	0.100	U	mg/L	EPA 8240		09/23/94	09/24/94	BLS
Methylene Chloride	1.72	B	mg/L	EPA 8240		09/23/94	09/24/94	BLS
Carbon Disulfide	0.100	U	mg/L	EPA 8240		09/23/94	09/24/94	BLS
1,1-Dichloroethene	0.100	U	mg/L	EPA 8240		09/23/94	09/24/94	BLS
1,1-Dichloroethane	0.100	U	mg/L	EPA 8240		09/23/94	09/24/94	BLS
t-1,2-Dichloroethene	0.100	U	mg/L	EPA 8240		09/23/94	09/24/94	BLS
Chloroform	0.184	D	mg/L	EPA 8240		09/23/94	09/24/94	BLS
1,2-Dichloroethane	0.100	U	mg/L	EPA 8240		09/23/94	09/24/94	BLS
2-Butanone	1.00	U	mg/L	EPA 8240		09/23/94	09/24/94	BLS
1,1,1-Trichloroethane	0.100	U	mg/L	EPA 8240		09/23/94	09/24/94	BLS
Carbon Tetrachloride	0.326	D	mg/L	EPA 8240		09/23/94	09/24/94	BLS
Bromodichloromethane	0.100	U	mg/L	EPA 8240		09/23/94	09/24/94	BLS
1,2-Dichloropropane	0.100	U	mg/L	EPA 8240		09/23/94	09/24/94	BLS
cis-1,3-Dichloropropene	0.100	U	mg/L	EPA 8240		09/23/94	09/24/94	BLS
Trichloroethene	0.577	D	mg/L	EPA 8240		09/23/94	09/24/94	BLS
Dibromochloromethane	0.100	U	mg/L	EPA 8240		09/23/94	09/24/94	BLS
1,1,2-Trichloroethane	0.100	U	mg/L	EPA 8240		09/23/94	09/24/94	BLS
Benzene	0.100	U	mg/L	EPA 8240		09/23/94	09/24/94	BLS
trans-1,3-Dichloroprope	0.100	U	mg/L	EPA 8240		09/23/94	09/24/94	BLS
Bromoform	0.100	U	mg/L	EPA 8240		09/23/94	09/24/94	BLS
4-Methyl-2-Pentanone	1.00	U	mg/L	EPA 8240		09/23/94	09/24/94	BLS
Tetrachloroethene	0.100	U	mg/L	EPA 8240		09/23/94	09/24/94	BLS
1122-Tetrachloroethane	0.100	U	mg/L	EPA 8240		09/23/94	09/24/94	BLS
Toluene	1.35	B	mg/L	EPA 8240		09/23/94	09/24/94	BLS
Chlorobenzene	0.100	U	mg/L	EPA 8240		09/23/94	09/24/94	BLS
Ethylbenzene	0.100	U	mg/L	EPA 8240		09/23/94	09/24/94	BLS
Styrene	0.100	U	mg/L	EPA 8240		09/23/94	09/24/94	BLS

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ENVIRONMENTAL FACILITIES IN ALASKA, COLORADO, FLORIDA, ILLINOIS, MARYLAND, NEW JERSEY, OHIO, UTAH, WEST VIRGINIA

F-7120/46/94



Commercial Testing & Engineering Co.

Environmental Laboratory Services

LABORATORY ANALYSIS REPORT

CT&E Ref.# 94.4762-2
Client Sample ID LIS-LF01-3W04 HIGH CONCENTRATIONS RRPH
Matrix SOIL

Xylene (total) 0.100 U mg/L EPA 8240 09/23/94 09/24/94 BLS

See Special Instructions Above

See Sample Remarks Above

- Undetected, Reported value is the practical quantification limit.
- Secondary dilution.

UA= Unavailable

NA= Not Analyzed

LT= Less Than

GT= Greater Than

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ENVIRONMENTAL FACILITIES IN ALASKA, COLORADO, FLORIDA, ILLINOIS, MARYLAND, NEW JERSEY, OHIO, UTAH, WEST VIRGINIA



CT&E Environmental Services Inc.

Laboratory Division

CT&E Ref.# 95.1884-1
Matrix OIL
Client Sample ID #1 LIZ-LF01-FP1

Laboratory Analysis Report

Client Name ICF KAISER ENGINEERING
Ordered By JOHN FRERICH
Project Name CAPE LISBURNE-IRA
Project# 41096
PWSID UA

WORK Order 14704
Printed Date 06/08/95 @ 13:36 hrs.
Collected Date 05/10/95 @ 08:30 hrs.
Received Date 05/15/95 @ 12:30 hrs.

Technical Director STEPHEN C. EDE

Released By *Sharon Preston*

Sample Remarks: SAMPLE COLLECTED BY: JOHN F. FINAL RESULTS.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Waste Mgmt Profile				EPA				
Characterization, Full	---						05/16/95	BJS
Aqueous Phase, Total	---		% Vol					
.....Water Content	---		% Vol	ASTM D-1744				
.....Glycol Content	---		% Vol	ASTM D-3695				
.....Alcohol Content	---		% Vol	ASTM D-3695				
Oil Phase, Total	100		% Vol				05/16/95	BJS
Solid Phase, Total	---		% Vol					
TCLP Metals				EPA 1311				
Arsenic	0.21	U	mg/L	EPA 7060/7061	5.0 max	05/25/95	05/26/95	CLC
Barium	900	D	mg/L	EPA 7080/6010	100.0 max	06/01/95	06/02/95	EMW
Cadmium	0.10	U	mg/L	EPA 7131/6010	1.0 max	06/01/95	06/06/95	BMW
Chromium	1.0	U	mg/L	EPA 7191/6010	5.0 max	06/01/95	06/06/95	BMW
Copper	20	U	mg/L	EPA 7210/6010		06/01/95	06/02/95	EMW
Lead	5.3	D	mg/L	EPA 7421/6010	5.0 max	06/01/95	06/05/95	KGF
Mercury	0.10	U	mg/L	EPA 7470/7471	0.2 max	06/01/95	06/01/95	AFK
Nickel	20	U	mg/L	EPA 7520/6010		06/01/95	06/02/95	EMW
Selenium	0.21	U	mg/L	EPA 7740/7741	1.0 max	05/25/95	05/26/95	CLC
Silver	0.41	U	mg/L	EPA 7760/6010	5.0 max	06/01/95	06/08/95	BMW
Zinc	72	D	mg/L	EPA 7950/6010		06/01/95	06/02/95	EMW
Sulfides Releasable	5	U	mg/Kg	7.3.4.1/9030	500 max		05/26/95	BJS
Phenols, Total	6.65		mg/Kg	EPA 9066			05/23/95	CMR
Cyanide Releasable	5	U	mg/Kg	7.3.3.2/9010	250 max		05/26/95	BJS
PCB	4.00	U	mg/Kg	EPA 8080		05/17/95	05/20/95	ECG
Total Volatiles								
Benzene	3.70	U	mg/L	EPA 8240	0.5	05/17/95	05/17/95	BLS
Carbon Tetrachloride	14.4	D	mg/L	EPA 8240	0.5	05/17/95	05/17/95	BLS
Chlorobenzene	3.70	U	mg/L	EPA 8240	100.0	05/17/95	05/17/95	BLS
Chloroform	3.70	U	mg/L	EPA 8240	6.0	05/17/95	05/17/95	BLS
1,4-Dichlorobenzene	3.70	U	mg/L	EPA 8240	7.5	05/17/95	05/17/95	BLS
1,2-Dichloroethane	3.70	U	mg/L	EPA 8240	0.5	05/17/95	05/17/95	BLS
1,1-Dichloroethylene	3.70	U	mg/L	EPA 8240	0.7	05/17/95	05/17/95	BLS
Methyl Ethyl Ketone	37.0	U	mg/L	EPA 8240	200.0	05/17/95	05/17/95	BLS
Tetrachloroethylene	3.70	U	mg/L	EPA 8240	0.7	05/17/95	05/17/95	BLS
Trichloroethylene	9.47	D	mg/L	EPA 8240	0.5	05/17/95	05/17/95	BLS



CT&E Environmental Services Inc.

CT&E Ref.# 95.1884-1
Matrix OIL
Client Sample ID #1 LIZ-LF01-FP1

Vinyl Chloride	3.70	U	mg/L	EPA 8240	0.2	05/17/95	05/17/95	BLS
Chloromethane	3.70	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Bromomethane	3.70	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Chloroethane	3.70	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Methylene Chloride	3.70	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Carbon Disulfide	3.70	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
1,1-Dichloroethane	3.70	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
1,2-Dichloroethylene	3.70	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
1,1,1-Trichloroethane	3.70	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Bromodichloroethane	3.70	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
1,2-Dichloropropane	3.70	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
cis-1,3-Dichloropropene	3.70	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Bromoform	3.70	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Methyl Isobutyl Ketone	37.0	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
1122-Tetrachloroethane	3.70	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Toluene	40.7	D	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Ethylbenzene	20.5	D	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Styrene	3.70	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Xylene (total)	154	D	mg/L	EPA 8240		05/17/95	05/17/95	BLS

pH, Corrosivity	6.8		units	EPA 9040	2.0 - 12.5		05/19/95	BJS
degrees F, Flammability	GT 200		deg F	EPA 1010/1020	min 140		05/16/95	EAL
Activity	NONREACT			SW 846, 7.3			05/26/95	BJS
Boiling Point	GT 110		deg F	COC			05/23/95	EAL

See Special Instructions Above

** See Sample Remarks Above

U = Undetected, Reported value is the practical quantification limit.

D = Secondary dilution.

UA = Unavailable

NA = Not Analyzed

LT = Less Than

GT = Greater Than



CT&E Environmental Services Inc.

CT&E Ref.# 95.1884-2
Matrix OIL
Client Sample ID #2 LIZ-LF01-FP2

Client Name ICF KAISER ENGINEERING
Ordered By JOHN FRERICH
Project Name CAPE LISBURNE-IRA
Project# 41096
PWSID UA

WORK Order 14704
Printed Date 06/08/95 @ 13:37 hrs.
Collected Date 05/10/95 @ 09:00 hrs.
Received Date 05/15/95 @ 12:30 hrs.

Technical Director STEPHEN C. EDE

Released By *Sharon Patten*

Sample Remarks: SAMPLE COLLECTED BY: JOHN F. FINAL RESULTS.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
<hr/>								
Waste Mgmt Profile				EPA				
Characterization, Full	---						05/16/95	BJS
Aqueous Phase, Total	---		% Vol					
.....Water Content	---		% Vol	ASTM D-1744				
.....Glycol Content	---		% Vol	ASTM D-3695				
.....Alcohol Content	---		% Vol	ASTM D-3695				
Oil Phase, Total	100		% Vol				05/16/95	BJS
Solid Phase, Total	---		% Vol					
<hr/>								
TCLP Metals	---			EPA 1311				
Arsenic	0.22	U	mg/L	EPA 7060/7061	5.0 max	05/25/95	05/26/95	CLC
Barium	810	D	mg/L	EPA 7080/6010	100.0 max	06/01/95	06/02/95	EMW
Cadmium	0.11	U	mg/L	EPA 7131/6010	1.0 max	06/01/95	06/06/95	BMW
Chromium	1.1	U	mg/L	EPA 7191/6010	5.0 max	06/01/95	06/05/95	BMW
Copper	22	U	mg/L	EPA 7210/6010		06/01/95	06/02/95	EMW
Lead	8.6	D	mg/L	EPA 7421/6010	5.0 max	06/01/95	06/05/95	KGF
Mercury	0.11		mg/L	EPA 7470/7471	0.2 max	06/01/95	06/01/95	AFK
Nickel	22	U	mg/L	EPA 7520/6010		06/01/95	06/02/95	EMW
Selenium	0.22	U	mg/L	EPA 7740/7741	1.0 max	05/25/95	05/26/95	CLC
Silver	0.43	U	mg/L	EPA 7760/6010	5.0 max	06/01/95	06/08/95	BMW
Zinc	22	U	mg/L	EPA 7950/6010		06/01/95	06/02/95	EMW
Sulfides Releasable	5	U	mg/Kg	7.3.4.1/9030	500 max		05/26/95	BJS
Phenols, Total	5.0	U	mg/Kg	EPA 9066			05/23/95	CMR
Cyanide Releasable	5	U	mg/Kg	7.3.3.2/9010	250 max		05/26/95	BJS
PCB	2.00	U	mg/Kg	EPA 8080		05/17/95	05/20/95	ECG
<hr/>								
Total Volatiles	---							
Benzene	72.0	U	mg/L	EPA 8240	0.5	05/17/95	05/17/95	BLS
Carbon Tetrachloride	72.0	U	mg/L	EPA 8240	0.5	05/17/95	05/17/95	BLS
Chlorobenzene	72.0	U	mg/L	EPA 8240	100.0	05/17/95	05/17/95	BLS
Chloroform	72.0	U	mg/L	EPA 8240	6.0	05/17/95	05/17/95	BLS
1,4-Dichlorobenzene	72.0	U	mg/L	EPA 8240	7.5	05/17/95	05/17/95	BLS
1,2-Dichloroethane	72.0	U	mg/L	EPA 8240	0.5	05/17/95	05/17/95	BLS
1,1-Dichloroethylene	72.0	U	mg/L	EPA 8240	0.7	05/17/95	05/17/95	BLS
Methyl Ethyl Ketone	720	U	mg/L	EPA 8240	200.0	05/17/95	05/17/95	BLS
Tetrachloroethylene	72.0	U	mg/L	EPA 8240	0.7	05/17/95	05/17/95	BLS
Trichloroethylene	77700	D	mg/L	EPA 8240	0.5	05/17/95	05/17/95	BLS

**CT&E Environmental Services Inc.**

CT&E Ref.# 95.1884-2
Matrix OIL
Client Sample ID #2 LIZ-LF01-FP2

Vinyl Chloride	72.0	U	mg/L	EPA 8240	0.2	05/17/95	05/17/95	BLS
Chloromethane	72.0	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Bromomethane	72.0	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Chloroethane	72.0	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Methylene Chloride	72.0	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Carbon Disulfide	72.0	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
1,1-Dichloroethane	72.0	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
1,2-Dichloroethylene	72.0	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
1,1,1-Trichloroethane	72.0	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Bromodichloroethane	72.0	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
1,2-Dichloropropane	72.0	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
cis-1,3-Dichloropropene	72.0	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Bromoform	72.0	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Methyl Isobutyl Ketone	720	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
1122-Tetrachloroethane	72.0	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Toluene	1790	D	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Ethylbenzene	72.0	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Styrene	72.0	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Xylene (total)	154	D	mg/L	EPA 8240		05/17/95	05/17/95	BLS

pH, Corrosivity	8.0		units	EPA 9040	2.0 - 12.5		05/19/95	BJS
degrees F, Flammability	167		deg F	EPA 1010/1020	min 140		05/16/95	EAL
Reactivity	NONREACT			SW 846, 7.3			05/26/95	BJS
Boiling Point	GT 110		deg F	COC			05/23/95	EAL

See Special Instructions Above

** See Sample Remarks Above

U = Undetected, Reported value is the practical quantification limit.

D = Secondary dilution.

UA = Unavailable

NA = Not Analyzed

LT = Less Than

GT = Greater Than

**CT&E Environmental Services Inc.**

CT&E Ref.# 95.1884-3
Matrix OIL
Client Sample ID #3 LIZ-LF01-FP3

Client Name ICF KAISER ENGINEERING
Ordered By JOHN FRERICH
Project Name CAPE LISBURN-IRA
Project# 41096
PWSID UA

WORK Order 14704
Printed Date 06/08/95 @ 13:37 hrs.
Collected Date 05/10/95 @ 09:35 hrs.
Received Date 05/15/95 @ 12:30 hrs.

Technical Director STEPHEN C. EDE

Released By *Sharon Patton*

Sample Remarks: SAMPLE COLLECTED BY: JOHN F. FINAL RESULTS.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
<hr/>								
Waste Mgmt Profile				EPA				
Characterization, Full	---						05/16/95	BJS
Aqueous Phase, Total	---		% Vol					
.....Water Content	---		% Vol	ASTM D-1744				
.....Glycol Content	---		% Vol	ASTM D-3695				
.....Alcohol Content	---		% Vol	ASTM D-3695				
Oil Phase, Total	100		% Vol				05/16/95	BJS
Solid Phase, Total	---		% Vol					
TCLP Metals	---			EPA 1311				
Arsenic	0.22	U	mg/L	EPA 7060/7061	5.0 max	05/25/95	05/26/95	CLC
Barium	1700	D	mg/L	EPA 7080/6010	100.0 max	06/01/95	06/02/95	EMW
Cadmium	0.11	U	mg/L	EPA 7131/6010	1.0 max	06/01/95	06/06/95	BMW
Chromium	1.1	U	mg/L	EPA 7191/6010	5.0 max	06/01/95	06/05/95	BMW
Copper	22	U	mg/L	EPA 7210/6010		06/01/95	06/02/95	EMW
Lead	4.0		mg/L	EPA 7421/6010	5.0 max	06/01/95	06/05/95	KGF
Mercury	0.10	U	mg/L	EPA 7470/7471	0.2 max	06/01/95	06/01/95	AFK
Nickel	22	U	mg/L	EPA 7520/6010		06/01/95	06/02/95	EMW
Selenium	0.22	U	mg/L	EPA 7740/7741	1.0 max	05/25/95	05/26/95	CLC
Silver	0.43	U	mg/L	EPA 7760/6010	5.0 max	06/01/95	06/08/95	BMW
Zinc	22	U	mg/L	EPA 7950/6010		06/01/95	06/02/95	EMW
Sulfides Releasable	5	U	mg/Kg	7.3.4.1/9030	500 max		05/26/95	BJS
Phenols, Total	5.0	U	mg/Kg	EPA 9066			05/23/95	CMR
Cyanide Releasable	5	U	mg/Kg	7.3.3.2/9010	250 max		05/26/95	BJS
PCB	4.00	U	mg/Kg	EPA 8080		05/17/95	05/20/95	ECG
Total Volatiles	---							
Benzene	4.30	U	mg/L	EPA 8240	0.5	05/17/95	05/17/95	BLS
Carbon Tetrachloride	4.30	U	mg/L	EPA 8240	0.5	05/17/95	05/17/95	BLS
Chlorobenzene	4.30	U	mg/L	EPA 8240	100.0	05/17/95	05/17/95	BLS
Chloroform	4.30	U	mg/L	EPA 8240	6.0	05/17/95	05/17/95	BLS
1,4-Dichlorobenzene	4.30	U	mg/L	EPA 8240	7.5	05/17/95	05/17/95	BLS
1,2-Dichloroethane	4.30	U	mg/L	EPA 8240	0.5	05/17/95	05/17/95	BLS
1,1-Dichloroethylene	4.30	U	mg/L	EPA 8240	0.7	05/17/95	05/17/95	BLS
Methyl Ethyl Ketone	43.0	U	mg/L	EPA 8240	200.0	05/17/95	05/17/95	BLS
Tetrachloroethylene	4.30	U	mg/L	EPA 8240	0.7	05/17/95	05/17/95	BLS
Trichloroethylene	6.03	D	mg/L	EPA 8240	0.5	05/17/95	05/17/95	BLS

**CT&E Environmental Services Inc.**

CT&E Ref.# 95.1884-3
Matrix OIL
Client Sample ID #3 LIZ-LF01-FP3

Vinyl Chloride	4.30	U	mg/L	EPA 8240	0.2	05/17/95	05/17/95	BLS
Chloromethane	4.30	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Bromomethane	4.30	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Chloroethane	4.30	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Methylene Chloride	4.30	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Carbon Disulfide	4.30	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
1,1-Dichloroethane	4.30	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
1,2-Dichloroethylene	4.30	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
1,1,1-Trichloroethane	4.30	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Bromodichloroethane	4.30	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
1,2-Dichloropropane	4.30	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
cis-1,3-Dichloropropene	4.30	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Bromoform	4.30	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Methyl Isobutyl Ketone	43.0	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
1122-Tetrachloroethane	4.30	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Toluene	26.1	D	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Ethylbenzene	15.5	D	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Styrene	4.30	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Xylene (total)	107	D	mg/L	EPA 8240		05/17/95	05/17/95	BLS

pH, Corrosivity	8.0		units	EPA 9040	2.0 - 12.5		05/19/95	BJS
degrees F, Flammability	GT 200		deg F	EPA 1010/1020	min 140		05/16/95	EAL
Activity	NONREACT			SW 846, 7.3			05/26/95	BJS
Boiling Point	GT 110		deg F	COC			05/23/95	EAL

See Special Instructions Above

See Sample Remarks Above

U = Undetected, Reported value is the practical quantification limit.

D = Secondary dilution.

UA = Unavailable

NA = Not Analyzed

LT = Less Than

GT = Greater Than



CT&E Environmental Services Inc.

CT&E Ref.# 95.1884-4
Matrix OIL
Client Sample ID #4 LIZ-LF01-FP4

Client Name ICF KAISER ENGINEERING
Ordered By JOHN FRERICH
Project Name CAPE LISBURNE-IRA
Project# 41096
PWSID UA

WORK Order 14704
Printed Date 06/08/95 @ 13:37 hrs.
Collected Date 05/10/95 @ 10:05 hrs.
Received Date 05/15/95 @ 12:30 hrs.

Technical Director STEPHEN C. EDE

Released By *Sharon Patten*

Sample Remarks: SAMPLE COLLECTED BY: JOHN F. FINAL RESULTS.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Waste Mgmt Profile				EPA				
Characterization, Full	---						05/16/95	BJS
Aqueous Phase, Total	---		% Vol					
.....Water Content	---		% Vol	ASTM D-1744				
.....Glycol Content	---		% Vol	ASTM D-3695				
.....Alcohol Content	---		% Vol	ASTM D-3695				
Oil Phase, Total	100		% Vol				05/16/95	BJS
Solid Phase, Total	---		% Vol					
TCLP Metals	---			EPA 1311				
Arsenic	0.20	U	mg/L	EPA 7060/7061	5.0 max	05/25/95	05/26/95	CLC
Barium	1300	D	mg/L	EPA 7080/6010	100.0 max	06/01/95	06/02/95	EMW
Cadmium	0.10	U	mg/L	EPA 7131/6010	1.0 max	06/01/95	06/06/95	BMW
Chromium	1.0	U	mg/L	EPA 7191/6010	5.0 max	06/01/95	06/05/95	BMW
Copper	20	U	mg/L	EPA 7210/6010		06/01/95	06/02/95	EMW
Lead	0.65	D	mg/L	EPA 7421/6010	5.0 max	06/01/95	06/05/95	KGF
Mercury	0.10	U	mg/L	EPA 7470/7471	0.2 max	06/01/95	06/01/95	AFK
Nickel	20	U	mg/L	EPA 7520/6010		06/01/95	06/02/95	EMW
Selenium	0.20	U	mg/L	EPA 7740/7741	1.0 max	05/25/95	05/26/95	CLC
Silver	0.41	U	mg/L	EPA 7760/6010	5.0 max	06/01/95	06/08/95	BMW
Zinc	40	D	mg/L	EPA 7950/6010		06/01/95	06/02/95	EMW
Sulfides Releasable	5	U	mg/Kg	7.3.4.1/9030	500 max		05/26/95	BJS
Phenols, Total	19		mg/Kg	EPA 9066			05/23/95	CMR
Cyanide Releasable	5	U	mg/Kg	7.3.3.2/9010	250 max		05/26/95	BJS
PCB	4.00	U	mg/Kg	EPA 8080		05/17/95	05/20/95	ECG
Total Volatiles	---							
Benzene	4.00	U	mg/L	EPA 8240	0.5	05/17/95	05/18/95	BLS
Carbon Tetrachloride	4.00	U	mg/L	EPA 8240	0.5	05/17/95	05/18/95	BLS
Chlorobenzene	4.00	U	mg/L	EPA 8240	100.0	05/17/95	05/18/95	BLS
Chloroform	4.00	U	mg/L	EPA 8240	6.0	05/17/95	05/18/95	BLS
1,4-Dichlorobenzene	4.00	U	mg/L	EPA 8240	7.5	05/17/95	05/18/95	BLS
1,2-Dichloroethane	4.00	U	mg/L	EPA 8240	0.5	05/17/95	05/18/95	BLS
1,1-Dichloroethylene	4.00	U	mg/L	EPA 8240	0.7	05/17/95	05/18/95	BLS
Methyl Ethyl Ketone	40.0	U	mg/L	EPA 8240	200.0	05/17/95	05/18/95	BLS
Tetrachloroethylene	4.00	U	mg/L	EPA 8240	0.7	05/17/95	05/18/95	BLS
Trichloroethylene	6.17	D	mg/L	EPA 8240	0.5	05/17/95	05/18/95	BLS

**CT&E Environmental Services Inc.**

CT&E Ref.# 95.1884-4
Matrix OIL
Client Sample ID #4 LIZ-LF01-FP4

Vinyl Chloride	4.00	U	mg/L	EPA 8240	0.2	05/17/95	05/18/95	BLS
Chloromethane	4.00	U	mg/L	EPA 8240		05/17/95	05/18/95	BLS
Bromomethane	4.00	U	mg/L	EPA 8240		05/17/95	05/18/95	BLS
Chloroethane	4.00	U	mg/L	EPA 8240		05/17/95	05/18/95	BLS
Methylene Chloride	4.00	U	mg/L	EPA 8240		05/17/95	05/18/95	BLS
Carbon Disulfide	4.00	U	mg/L	EPA 8240		05/17/95	05/18/95	BLS
1,1-Dichloroethane	4.00	U	mg/L	EPA 8240		05/17/95	05/18/95	BLS
1,2-Dichloroethylene	4.00	U	mg/L	EPA 8240		05/17/95	05/18/95	BLS
1,1,1-Trichloroethane	4.00	U	mg/L	EPA 8240		05/17/95	05/18/95	BLS
Bromodichloroethane	4.00	U	mg/L	EPA 8240		05/17/95	05/18/95	BLS
1,2-Dichloropropane	4.00	U	mg/L	EPA 8240		05/17/95	05/18/95	BLS
cis-1,3-Dichloropropene	4.00	U	mg/L	EPA 8240		05/17/95	05/18/95	BLS
Bromoform	4.00	U	mg/L	EPA 8240		05/17/95	05/18/95	BLS
Methyl Isobutyl Ketone	40.0	U	mg/L	EPA 8240		05/17/95	05/18/95	BLS
1122-Tetrachloroethane	4.00	U	mg/L	EPA 8240		05/17/95	05/18/95	BLS
Toluene	511	D	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Ethylbenzene	5.74	D	mg/L	EPA 8240		05/17/95	05/18/95	BLS
Styrene	4.00	U	mg/L	EPA 8240		05/17/95	05/18/95	BLS
Xylene (total)	41.1	D	mg/L	EPA 8240		05/17/95	05/18/95	BLS

pH, Corrosivity	8.6		units	EPA 9040	2.0 - 12.5		05/19/95	BJS
degrees F, Flammability	GT 200		deg F	EPA 1010/1020	min 140		05/16/95	EAL
Reactivity	NONREACT			SW 846, 7.3			05/26/95	BJS
Boiling Point	GT 110		deg F	COC			05/23/95	EAL

See Special Instructions Above

** See Sample Remarks Above

U = Undetected, Reported value is the practical quantification limit.

D = Secondary dilution.

UA = Unavailable

NA = Not Analyzed

LT = Less Than

GT = Greater Than

**CT&E Environmental Services Inc.**

CT&E Ref.# 95.1884-5
Matrix OIL
Client Sample ID #5 LIZ-LF01-FP5

Client Name ICF KAISER ENGINEERING
Ordered By JOHN FRERICH
Project Name CAPE LISBURNE-IRA
Project# 41096
PWSID UA

WORK Order 14704
Printed Date 06/08/95 @ 13:37 hrs.
Collected Date 05/10/95 @ 10:30 hrs.
Received Date 05/15/95 @ 12:30 hrs.

Technical Director STEPHEN C. EDE

Released By *Shane Patten*

Sample Remarks: SAMPLE COLLECTED BY: JOHN F. FINAL RESULTS.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init

Waste Mgmt Profile				EPA				
Characterization, Full	---						05/16/95	BJS
Aqueous Phase, Total	---		% Vol					
.....Water Content	---		% Vol	ASTM D-1744				
.....Glycol Content	---		% Vol	ASTM D-3695				
.....Alcohol Content	---		% Vol	ASTM D-3695				
Oil Phase, Total	98		% Vol				05/16/95	BJS
Solid Phase, Total	2		% Vol				05/16/95	BJS

TCLP Metals	---			EPA 1311				
Arsenic	0.22	U	mg/L	EPA 7060/7061	5.0 max	05/25/95	05/26/95	CLC
Barium	1200	D	mg/L	EPA 7080/6010	100.0 max	06/01/95	06/02/95	EMW
Cadmium	0.11	U	mg/L	EPA 7131/6010	1.0 max	06/01/95	06/06/95	BMW
Chromium	1.1	U	mg/L	EPA 7191/6010	5.0 max	06/01/95	06/05/95	BMW
Copper	22	U	mg/L	EPA 7210/6010		06/01/95	06/02/95	EMW
Lead	5.5	D	mg/L	EPA 7421/6010	5.0 max	06/01/95	06/05/95	KGF
Mercury	0.10	U	mg/L	EPA 7470/7471	0.2 max	06/01/95	06/01/95	AFK
Nickel	22	U	mg/L	EPA 7520/6010		06/01/95	06/02/95	EMW
Selenium	0.22	U	mg/L	EPA 7740/7741	1.0 max	05/25/95	05/26/95	CLC
Silver	0.44	U	mg/L	EPA 7760/6010	5.0 max	06/01/95	06/08/95	BMW
Zinc	43	D	mg/L	EPA 7950/6010		06/01/95	06/02/95	EMW
Sulfides Releasable	5	U	mg/Kg	7.3.4.1/9030	500 max		05/26/95	BJS
Phenols, Total	5.85		mg/Kg	EPA 9066			05/23/95	CMR
Cyanide Releasable	5	U	mg/Kg	7.3.3.2/9010	250 max		05/26/95	BJS
PCB	7.00	U	mg/Kg	EPA 8080		05/17/95	05/20/95	ECG

Total Volatiles	---							
Benzene	42.0	U	mg/L	EPA 8240	0.5	05/17/95	05/17/95	BLS
Carbon Tetrachloride	42.0	U	mg/L	EPA 8240	0.5	05/17/95	05/17/95	BLS
Chlorobenzene	42.0	U	mg/L	EPA 8240	100.0	05/17/95	05/17/95	BLS
Chloroform	42.0	U	mg/L	EPA 8240	6.0	05/17/95	05/17/95	BLS
1,4-Dichlorobenzene	42.0	U	mg/L	EPA 8240	7.5	05/17/95	05/17/95	BLS
1,2-Dichloroethane	42.0	U	mg/L	EPA 8240	0.5	05/17/95	05/17/95	BLS
1,1-Dichloroethylene	42.0	U	mg/L	EPA 8240	0.7	05/17/95	05/17/95	BLS
Methyl Ethyl Ketone	420	U	mg/L	EPA 8240	200.0	05/17/95	05/17/95	BLS
Tetrachloroethylene	42.0	U	mg/L	EPA 8240	0.7	05/17/95	05/17/95	BLS
Trichloroethylene	43000	D	mg/L	EPA 8240	0.5	05/17/95	05/18/95	BLS



CT&E Environmental Services Inc.

CT&E Ref.# 95.1884-5
Matrix OIL
Client Sample ID #5 LIZ-LF01-FP5

Vinyl Chloride	42.0	U	mg/L	EPA 8240	0.2	05/17/95	05/17/95	BLS
Chloromethane	42.0	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Bromomethane	42.0	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Chloroethane	42.0	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Methylene Chloride	42.0	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Carbon Disulfide	42.0	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
1,1-Dichloroethane	42.0	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
1,2-Dichloroethylene	42.0	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
1,1,1-Trichloroethane	42.0	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Bromodichloroethane	42.0	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
1,2-Dichloropropane	42.0	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
cis-1,3-Dichloropropene	42.0	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Bromoform	42.0	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Methyl Isobutyl Ketone	420	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
1122-Tetrachloroethane	42.0	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Toluene	53.1	D	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Ethylbenzene	42.0	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Styrene	42.0	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Xylene (total)	42.0	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS

pH, Corrosivity	9.0		units	EPA 9040	2.0 - 12.5		05/19/95	BJS
degrees F, Flammability	GT 200		deg F	EPA 1010/1020	min 140		05/16/95	EAL
Activity	NONREACT			SW 846, 7.3			05/26/95	BJS
Boiling Point	GT 110		deg F	COC			05/23/95	EAL

See Special Instructions Above

See Sample Remarks Above

U = Undetected, Reported value is the practical quantification limit.

D = Secondary dilution.

UA = Unavailable

NA = Not Analyzed

LT = Less Than

GT = Greater Than



CT&E Environmental Services Inc.

CT&E Ref.# 95.1884-6
Matrix OIL
Client Sample ID #6 LIZ-LF01-FP6

Client Name ICF KAISER ENGINEERING
Ordered By JOHN FRERICH
Project Name CAPE LISBURNE-IRA
Project# 41096
PWSID UA

WORK Order 14704
Printed Date 06/08/95 @ 13:38 hrs.
Collected Date 05/10/95 @ 11:00 hrs.
Received Date 05/15/95 @ 12:30 hrs.

Technical Director STEPHEN C. EDE

Released By *Sharon Patten*

Sample Remarks: SAMPLE COLLECTED BY: JOHN F. FINAL RESULTS.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Waste Mgmt Profile				EPA				
Characterization, Full	---						05/16/95	BJS
Aqueous Phase, Total	---		% Vol					
.....Water Content	---		% Vol	ASTM D-1744				
.....Glycol Content	---		% Vol	ASTM D-3695				
.....Alcohol Content	---		% Vol	ASTM D-3695				
Oil Phase, Total	100		% Vol				05/16/95	BJS
Solid Phase, Total	---		% Vol					
TCLP Metals	---			EPA 1311				
Arsenic	0.24	U	mg/L	EPA 7060/7061	5.0 max	05/25/95	05/26/95	CLC
Barium	710	D	mg/L	EPA 7080/6010	100.0 max	06/01/95	06/02/95	EMW
Cadmium	0.12	U	mg/L	EPA 7131/6010	1.0 max	06/01/95	06/06/95	BMW
Chromium	1.2	U	mg/L	EPA 7191/6010	5.0 max	06/01/95	06/05/95	BMW
Copper	24	U	mg/L	EPA 7210/6010		06/01/95	06/02/95	EMW
Lead	28		mg/L	EPA 7421/6010	5.0 max	06/01/95	06/05/95	KGF
Mercury	0.12		mg/L	EPA 7470/7471	0.2 max	06/01/95	06/01/95	AFK
Nickel	24	U	mg/L	EPA 7520/6010		06/01/95	06/02/95	EMW
Selenium	0.24	U	mg/L	EPA 7740/7741	1.0 max	05/25/95	05/26/95	CLC
Silver	0.47	U	mg/L	EPA 7760/6010	5.0 max	06/01/95	06/08/95	BMW
Zinc	110	D	mg/L	EPA 7950/6010		06/01/95	06/02/95	EMW
Sulfides Releasable	5	U	mg/Kg	7.3.4.1/9030	500 max		05/26/95	BJS
Phenols, Total	5.0	U	mg/Kg	EPA 9066			05/23/95	CMR
Cyanide Releasable	5	U	mg/Kg	7.3.3.2/9010	250 max		05/26/95	BJS
PCB	4.00	U	mg/Kg	EPA 8080		05/17/95	05/20/95	ECG
Total Volatiles	---							
Benzene	232	D	mg/L	EPA 8240	0.5	05/17/95	05/17/95	BLS
Carbon Tetrachloride	92.0	U	mg/L	EPA 8240	0.5	05/17/95	05/17/95	BLS
Chlorobenzene	92.0	U	mg/L	EPA 8240	100.0	05/17/95	05/17/95	BLS
Chloroform	92.0	U	mg/L	EPA 8240	6.0	05/17/95	05/17/95	BLS
1,4-Dichlorobenzene	92.0	U	mg/L	EPA 8240	7.5	05/17/95	05/17/95	BLS
1,2-Dichloroethane	92.0	U	mg/L	EPA 8240	0.5	05/17/95	05/17/95	BLS
1,1-Dichloroethylene	92.0	U	mg/L	EPA 8240	0.7	05/17/95	05/17/95	BLS
Methyl Ethyl Ketone	920	U	mg/L	EPA 8240	200.0	05/17/95	05/17/95	BLS
Tetrachloroethylene	92.0	U	mg/L	EPA 8240	0.7	05/17/95	05/18/95	
Trichloroethylene	138000	D	mg/L	EPA 8240	0.5	05/17/95	05/17/95	

**CT&E Environmental Services Inc.**

CT&E Ref.# 95.1884-6
Matrix OIL
Client Sample ID #6 LIZ-LF01-FP6

Vinyl Chloride	92.0	U	mg/L	EPA 8240	0.2	05/17/95	05/17/95	BLS
Chloromethane	92.0	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Bromomethane	92.0	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Chloroethane	92.0	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Methylene Chloride	92.0	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Carbon Disulfide	92.0	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
1,1-Dichloroethane	92.0	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
1,2-Dichloroethylene	92.0	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
1,1,1-Trichloroethane	92.0	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Bromodichloroethane	92.0	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
1,2-Dichloropropane	92.0	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
cis-1,3-Dichloropropene	92.0	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Bromoform	92.0	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Methyl Isobutyl Ketone	92.0	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
1122-Tetrachloroethane	92.0	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Toluene	672	D	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Ethylbenzene	92.0	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Styrene	92.0	U	mg/L	EPA 8240		05/17/95	05/17/95	BLS
Xylene (total)	396	D	mg/L	EPA 8240		05/17/95	05/17/95	BLS

pH, Corrosivity	8.6		units	EPA 9040	2.0 - 12.5		05/19/95	BJS
degrees F, Flammability	98		deg F	EPA 1010/1020	min 140		05/16/95	EAL
activity	NONREACT			SW 846, 7.3			05/26/95	BJS
Boiling Point	GT 110		deg F	COC			05/23/95	EAL

See Special Instructions Above

** See Sample Remarks Above

U = Undetected, Reported value is the practical quantification limit.

D = Secondary dilution.

UA = Unavailable

NA = Not Analyzed

LT = Less Than

GT = Greater Than

**CT&E Environmental Services Inc.**

CT&E Ref.# 95.1884-7
Matrix OIL
Client Sample ID #7 LIZ-LM01-FP7

Client Name ICF KAISER ENGINEERING
Ordered By JOHN FRERICH
Project Name CAPE LISBURNE-IRA
Project# 41096
PWSID UA

WORK Order 14704
Printed Date 06/08/95 @ 13:38 hrs.
Collected Date 05/10/95 @ 14:05 hrs.
Received Date 05/15/95 @ 12:30 hrs.

Technical Director STEPHEN C. EDE

Released By *Shawn Patten*

Sample Remarks: SAMPLE COLLECTED BY: JOHN F. FINAL RESULTS.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
<hr/>								
Waste Mgmt Profile				EPA				
Characterization, Full	---						05/16/95	BJS
Aqueous Phase, Total	30		% Vol				05/16/95	BJS
.....Water Content	---		% Vol	ASTM D-1744				
.....Glycol Content	---		% Vol	ASTM D-3695				
.....Alcohol Content	---		% Vol	ASTM D-3695				
Oil Phase, Total	70		% Vol				05/16/95	BJS
Solid Phase, Total	---		% Vol					
<hr/>								
TCLP Metals	---			EPA 1311				
Arsenic	0.21	U	mg/L	EPA 7060/7061	5.0 max	05/25/95	05/26/95	CLC
Barium	74	D	mg/L	EPA 7080/6010	100.0 max	06/01/95	06/02/95	EMW
Cadmium	0.1	U	mg/L	EPA 7131/6010	1.0 max	06/01/95	06/06/95	BMW
Chromium	1.0	U	mg/L	EPA 7191/6010	5.0 max	06/01/95	06/05/95	BMW
Copper	21	U	mg/L	EPA 7210/6010		06/01/95	06/02/95	EMW
Lead	10	D	mg/L	EPA 7421/6010	5.0 max	06/01/95	06/05/95	KGF
Mercury	0.10	U	mg/L	EPA 7470/7471	0.2 max	06/01/95	06/01/95	AFK
Nickel	21	U	mg/L	EPA 7520/6010		06/01/95	06/02/95	EMW
Selenium	0.21	U	mg/L	EPA 7740/7741	1.0 max	05/25/95	05/26/95	CLC
Silver	0.42	U	mg/L	EPA 7760/6010	5.0 max	06/01/95	06/08/95	BMW
Zinc	21	U	mg/L	EPA 7950/6010		06/01/95	06/02/95	EMW
Sulfides Releasable	5	U	mg/Kg	7.3.4.1/9030	500 max		05/26/95	BJS
Phenols, Total	5.0	U	mg/Kg	EPA 9066			05/23/95	CMR
Cyanide Releasable	5	U	mg/Kg	7.3.3.2/9010	250 max		05/26/95	BJS
PCB	9.54		mg/Kg	EPA 8080		05/17/95	05/23/95	DSM
<hr/>								
Total Volatiles	---							
Benzene	7.60	U	mg/L	EPA 8240	0.5	05/17/95	05/18/95	BLS
Carbon Tetrachloride	553	D	mg/L	EPA 8240	0.5	05/17/95	05/18/95	BLS
Chlorobenzene	7.60	U	mg/L	EPA 8240	100.0	05/17/95	05/18/95	BLS
Chloroform	7.60	U	mg/L	EPA 8240	6.0	05/17/95	05/18/95	BLS
1,4-Dichlorobenzene	7.60	U	mg/L	EPA 8240	7.5	05/17/95	05/18/95	BLS
1,2-Dichloroethane	7.60	U	mg/L	EPA 8240	0.5	05/17/95	05/18/95	BLS
1,1-Dichloroethylene	7.60	U	mg/L	EPA 8240	0.7	05/17/95	05/18/95	BLS
Methyl Ethyl Ketone	76.0	U	mg/L	EPA 8240	200.0	05/17/95	05/18/95	BLS
Tetrachloroethylene	7.60	U	mg/L	EPA 8240	0.7	05/17/95	05/18/95	BLS
Trichloroethylene	1590	D	mg/L	EPA 8240	0.5	05/17/95	05/17/95	BLS

**CT&E Environmental Services Inc.**

CT&E Ref.# 95.1884-7
Matrix OIL
Client Sample ID #7 LIZ-LM01-FP7

Vinyl Chloride	7.60	U	mg/L	EPA 8240	0.2	05/17/95	05/18/95	BLS
Chloromethane	7.60	U	mg/L	EPA 8240		05/17/95	05/18/95	BLS
Bromomethane	7.60	U	mg/L	EPA 8240		05/17/95	05/18/95	BLS
Chloroethane	7.60	U	mg/L	EPA 8240		05/17/95	05/18/95	BLS
Methylene Chloride	7.60	U	mg/L	EPA 8240		05/17/95	05/18/95	BLS
Carbon Disulfide	7.60	U	mg/L	EPA 8240		05/17/95	05/18/95	BLS
1,1-Dichloroethane	7.60	U	mg/L	EPA 8240		05/17/95	05/18/95	BLS
1,2-Dichloroethylene	7.60	U	mg/L	EPA 8240		05/17/95	05/18/95	BLS
1,1,1-Trichloroethane	7.60	U	mg/L	EPA 8240		05/17/95	05/18/95	BLS
Bromodichloroethane	7.60	U	mg/L	EPA 8240		05/17/95	05/18/95	BLS
1,2-Dichloropropane	7.60	U	mg/L	EPA 8240		05/17/95	05/18/95	BLS
cis-1,3-Dichloropropene	7.60	U	mg/L	EPA 8240		05/17/95	05/18/95	BLS
Bromoform	7.60	U	mg/L	EPA 8240		05/17/95	05/18/95	BLS
Methyl Isobutyl Ketone	76.0	U	mg/L	EPA 8240		05/17/95	05/18/95	BLS
1122-Tetrachloroethane	7.60	U	mg/L	EPA 8240		05/17/95	05/18/95	BLS
Toluene	51.6	D	mg/L	EPA 8240		05/17/95	05/18/95	BLS
Ethylbenzene	41.2	D	mg/L	EPA 8240		05/17/95	05/18/95	BLS
Styrene	7.60	U	mg/L	EPA 8240		05/17/95	05/18/95	BLS
Xylene (total)	232	D	mg/L	EPA 8240		05/17/95	05/18/95	BLS

pH, Corrosivity	6.8		units	EPA 9040	2.0 - 12.5		05/19/95	BJS
degrees F, Flammability	GT 200		deg F	EPA 1010/1020	min 140		05/16/95	EAL
Activity	NONREACT			SW 846, 7.3			05/26/95	BJS
Boiling Point	GT 110		deg F	COC			05/23/95	EAL

See Special Instructions Above

See Sample Remarks Above

U = Undetected, Reported value is the practical quantification limit.

D = Secondary dilution.

UA = Unavailable

NA = Not Analyzed

LT = Less Than

GT = Greater Than



CT&E Environmental Services Inc.

Laboratory Division

RECEIVED AUG 21 1995

Laboratory Analysis Report

CT&E Ref.# 95.2714-1
Matrix WATER
Client Sample ID LIS-LF01-5FP08

Client Name ICF KAISER ENGINEERING
Ordered By JOHN FRERICH
Project Name CAPE LISBURNE (DEW LINE) IRA
Project# 41096-614-02
PWSID UA

WORK Order 15995
Printed Date 08/15/95 @ 14:24 hrs.
Collected Date 06/26/95 @ 14:35 hrs.
Received Date 06/30/95 @ 10:00 hrs.

Technical Director STEPHEN C. EDE

Released By *Sharon Proton*

Sample Remarks: SAMPLE COLLECTED BY: S.M. QUOTE #1962. CORRECTED PROJECT NUMBER FOR
SAMPLES 1 - 10.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
<hr/>								
Waste Mgmt Profile				EPA				
Characterization, Full	---						07/03/95	BJS
Aqueous Phase, Total	99		% Vol				07/03/95	BJS
.....Water Content	99.5		% Vol	ASTM D-1744			07/04/95	DHT
.....Glycol Content	---		% Vol	ASTM D-3695				
.....Alcohol Content	---		% Vol	ASTM D-3695				
Oil Phase, Total	1		% Vol				07/03/95	BJS
Solid Phase, Total	---		% Vol					
<hr/>								
TCLP Metals				EPA 1311				
Arsenic	0.050	U	mg/L	EPA 7060/7061	5.0 max		07/06/95	CLC
Barium	2.4		mg/L	EPA 7080/6010	100.0 max		07/06/95	LLB
Cadmium	0.40	U	mg/L	EPA 7131/6010	1.0 max		07/06/95	LLB
Chromium	0.50	U	mg/L	EPA 7191/6010	5.0 max		07/06/95	LLB
Chromium-Hex	1.0	U	mg/L	EPA 7196	5.0 max		07/06/95	BJS
Copper	0.50	U	mg/L	EPA 7210/6010			07/06/95	LLB
Lead	1.0	U	mg/L	EPA 7421/6010	5.0 max		07/06/95	LLB
Mercury	0.050	U	mg/L	EPA 7470/7471	0.2 max	07/06/95	07/06/95	TSS
Nickel	0.50	U	mg/L	EPA 7520/6010			07/06/95	LLB
Selenium	0.050	U	mg/L	EPA 7740/7741	1.0 max		07/05/95	CLC
Silver	1.0	U	mg/L	EPA 7760/6010	5.0 max		07/06/95	BJS
Zinc	0.50	U	mg/L	EPA 7950/6010			07/06/95	LLB
Sulfides Releasable	5	U	mg/Kg	7.3.4.1/9030	500 max		07/05/95	BJS
Phenols, Total	1.0	U	mg/L	EPA 9066			07/11/95	CMR
Cyanide Releasable	5	U	mg/Kg	7.3.3.2/9010	250 max		07/05/95	BJS
PCB	0.02	U	mg/L	EPA 8080		07/03/95	07/05/95	ECG
<hr/>								
Volatile Organics								
Benzene	0.100	U	mg/L	EPA 8240	0.5	07/10/95	07/10/95	MCM
Carbon Tetrachloride	0.996	D	mg/L	EPA 8240	0.5	07/10/95	07/10/95	MCM
Chlorobenzene	0.100	U	mg/L	EPA 8240	100.0	07/10/95	07/10/95	MCM
Chloroform	0.171	D	mg/L	EPA 8240	6.0	07/10/95	07/10/95	MCM
1,4-Dichlorobenzene	0.100	U	mg/L	EPA 8240	7.5	07/10/95	07/10/95	MCM
1,2-Dichloroethane	0.100	U	mg/L	EPA 8240	0.5	07/10/95	07/10/95	MCM
1,1-Dichloroethylene	0.100	U	mg/L	EPA 8240	0.7	07/10/95	07/10/95	MCM
Methyl Ethyl Ketone	1.00	U	mg/L	EPA 8240	200.0	07/10/95	07/10/95	MCM

150-520-95

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ENVIRONMENTAL FACILITIES IN ALASKA, CALIFORNIA, FLORIDA, ILLINOIS, MARYLAND, MICHIGAN, MISSOURI, NEW JERSEY, OHIO, WEST VIRGINIA

**CT&E Environmental Services Inc.**

CT&E Ref.# 95.2714-1
Matrix WATER
Client Sample ID LIS-LF01-5FP08

Tetrachloroethylene	0.100	U	mg/L	EPA 8240	0.7	07/10/95	07/10/95	MCM
Trichloroethylene	6.81	D	mg/L	EPA 8240	0.5	07/10/95	07/10/95	MCM
Vinyl Chloride	0.100	U	mg/L	EPA 8240	0.2	07/10/95	07/10/95	MCM
Chloromethane	0.100	U	mg/L	EPA 8240		07/10/95	07/10/95	MCM
Bromomethane	0.100	U	mg/L	EPA 8240		07/10/95	07/10/95	MCM
Chloroethane	0.100	U	mg/L	EPA 8240		07/10/95	07/10/95	MCM
Methylene Chloride	0.100	U	mg/L	EPA 8240		07/10/95	07/10/95	MCM
Carbon Disulfide	0.100	U	mg/L	EPA 8240		07/10/95	07/10/95	MCM
1,1-Dichloroethane	0.100	U	mg/L	EPA 8240		07/10/95	07/10/95	MCM
1,2-Dichloroethylene	0.100	U	mg/L	EPA 8240		07/10/95	07/10/95	MCM
1,1,1-Trichloroethane	0.100	U	mg/L	EPA 8240		07/10/95	07/10/95	MCM
Bromodichloromethane	0.100	U	mg/L	EPA 8240		07/10/95	07/10/95	MCM
1,2-Dichloropropane	0.100	U	mg/L	EPA 8240		07/10/95	07/10/95	MCM
cis-1,3-Dichloropropene	0.100	U	mg/L	EPA 8240		07/10/95	07/10/95	MCM
Bromoform	0.100	U	mg/L	EPA 8240		07/10/95	07/10/95	MCM
Methyl Isobutyl Ketone	1.00	U	mg/L	EPA 8240		07/10/95	07/10/95	MCM
1,1,2,2-Tetrachloroethane	0.100	U	mg/L	EPA 8240		07/10/95	07/10/95	MCM
Toluene	0.167	D	mg/L	EPA 8240		07/10/95	07/10/95	MCM
Ethylbenzene	0.100	U	mg/L	EPA 8240		07/10/95	07/10/95	MCM
Styrene	0.100	U	mg/L	EPA 8240		07/10/95	07/10/95	MCM
Xylene (total)	0.124	D	mg/L	EPA 8240		07/10/95	07/10/95	MCM

pH, Corrosivity	7.0		units	EPA 9040	2.0 - 12.5		07/05/95	BJS
Flashpoint, Degrees F, Flammability	GT 200		deg F	EPA 1010/1020	min 140		07/05/95	DHT
Acidity	NONREACT			SW 846, 7.3			07/05/95	BJS
Boiling Point	GT 110		deg F	COC			07/05/95	DHT

See Special Instructions Above

See Sample Remarks Above

U = Undetected, Reported value is the practical quantification limit.

D = Secondary dilution.

UA = Unavailable

NA = Not Analyzed

LT = Less Than

GT = Greater Than



CT&E Environmental Services Inc.

CT&E Ref.# 95.2714-2
Matrix OIL
Client Sample ID LIS-LF01-5FP09

Client Name ICF KAISER ENGINEERING
Ordered By JOHN FRERICH
Project Name CAPE LISBURNE (DEW LINE) IRA
Project# 41096-614-02
PWSID UA

WORK Order 15995
Printed Date 08/15/95 @ 14:25 hrs.
Collected Date 06/26/95 @ 14:30 hrs.
Received Date 06/30/95 @ 10:00 hrs.

Technical Director STEPHEN C. EDE

Released By *Shane Preston*

Sample Remarks: QUOTE #1962.8240-TRICHLOROETHYLENE REPORTED OVER CALIBRATION RANGE
RERUN 7/11/95 PAST HOLDING TIME FOR CONFIRMATION RUN FOUND 8.92 MG/L
TRICHLOROETHYLENE.SAMPLE WAS SPIKED WITH 1242 AT 0.5 MG/ML IN SOIL DUE
TO MATRIX INTERFERENCE.E-IDENTIFIES COMPOUNDS WHOSE CONCEN. EXCEED THE
CALIB. RANGE OF THE INSTRUMENT FOR THAT SPEC. ANALYSIS. CORR. RESULTS.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
<hr/>								
Waste Mgmt Profile				EPA				
Characterization, Full	---						07/03/95	BJS
Aqueous Phase, Total	---		% Vol					
.....Water Content	---		% Vol	ASTM D-1744				
.....Glycol Content	---		% Vol	ASTM D-3695				
.....Alcohol Content	---		% Vol	ASTM D-3695				
Oil Phase, Total	100		% Vol				07/03/95	BJS
Solid Phase, Total	---		% Vol					
<hr/>								
TCLP Metals	---			EPA 1311				
Arsenic	0.23	U	mg/Kg	EPA 7060/7061	5.0 max	07/05/95	07/06/95	CLC
Barium	230	D	mg/L	EPA 7080/6010	100.0 max	07/11/95	07/12/95	KAW
Cadmium	0.12		mg/L	EPA 7131/6010	1.0 max	07/05/95	07/10/95	KGF
Chromium	0.57		mg/L	EPA 7191/6010	5.0 max	07/05/95	07/06/95	KGF
Copper	22	U	mg/L	EPA 7210/6010		07/11/95	07/12/95	KAW
Lead	39	D	mg/L	EPA 7421/6010	5.0 max	07/05/95	07/06/95	KGF
Mercury	0.10	U	mg/L	EPA 7470/7471	0.2 max	07/11/95	07/11/95	TSS
Nickel	22	U	mg/L	EPA 7520/6010		07/11/95	07/12/95	KAW
Selenium	0.23	U	mg/L	EPA 7740/7741	1.0 max	07/05/95	07/06/95	CLC
Silver	0.090	U	mg/L	EPA 7760/6010	5.0 max	07/04/95	07/06/95	KGF
Zinc	42		mg/L	EPA 7950/6010		07/11/95	07/12/95	KAW
Sulfides Releasable	5	U	mg/Kg	7.3.4.1/9030	500 max		07/05/95	BJS
Phenols, Total	5.0	U	mg/Kg	EPA 9066			07/11/95	CMR
Cyanide Releasable	5	U	mg/Kg	7.3.3.2/9010	250 max		07/05/95	BJS
PCB	**5.00	U	mg/Kg	EPA 8080		07/03/95	07/09/95	ECG
<hr/>								
Volatile Organics	---							
Benzene	0.100	U	mg/L	EPA 8240	0.5	07/10/95	07/10/95	MCM
Carbon Tetrachloride	3.37	D	mg/L	EPA 8240	0.5	07/10/95	07/10/95	MCM
Chlorobenzene	0.100	U	mg/L	EPA 8240	100.0	07/10/95	07/10/95	MCM
Chloroform	0.153	D	mg/L	EPA 8240	6.0	07/10/95	07/10/95	MCM
1,4-Dichlorobenzene	0.100	U	mg/L	EPA 8240	7.5	07/10/95	07/10/95	MCM
1,2-Dichloroethane	0.100	U	mg/L	EPA 8240	0.5	07/10/95	07/10/95	MCM



CT&E Environmental Services Inc.

CT&E Ref.# 95.2714-2
Matrix OIL
Client Sample ID LIS-LF01-5FP09

1,1-Dichloroethylene	0.100	U	mg/L	EPA 8240	0.7	07/10/95	07/10/95	MCM
Methyl Ethyl Ketone	1.00	U	mg/L	EPA 8240	200.0	07/10/95	07/10/95	MCM
Tetrachloroethylene	0.100	U	mg/L	EPA 8240	0.7	07/10/95	07/10/95	MCM
Trichloroethylene	11.5	E	mg/L	EPA 8240	0.5	07/10/95	07/11/95	MCM
Vinyl Chloride	0.100	U	mg/L	EPA 8240	0.2	07/10/95	07/11/95	MCM
Chloromethane	0.100	U	mg/L	EPA 8240		07/10/95	07/11/95	MCM
Bromomethane	0.100	U	mg/L	EPA 8240		07/10/95	07/11/95	MCM
Chloroethane	0.100	U	mg/L	EPA 8240		07/10/95	07/11/95	MCM
Methylene Chloride	0.100	U	mg/L	EPA 8240		07/10/95	07/11/95	MCM
Carbon Disulfide	0.100	U	mg/L	EPA 8240		07/10/95	07/11/95	MCM
1,1-Dichloroethane	0.100	U	mg/L	EPA 8240		07/10/95	07/11/95	MCM
1,2-Dichloroethylene	0.100	U	mg/L	EPA 8240		07/10/95	07/11/95	MCM
1,1,1-Trichloroethane	0.100	U	mg/L	EPA 8240		07/10/95	07/11/95	MCM
Bromodichloromethane	0.100	U	mg/L	EPA 8240		07/10/95	07/11/95	MCM
1,2-Dichloropropane	0.100	U	mg/L	EPA 8240		07/10/95	07/11/95	MCM
cis-1,3-Dichloropropene	0.100	U	mg/L	EPA 8240		07/10/95	07/11/95	MCM
Bromoform	0.100	U	mg/L	EPA 8240		07/10/95	07/11/95	MCM
Methyl Isobutyl Ketone	1.00	U	mg/L	EPA 8240		07/10/95	07/11/95	MCM
1122-Tetrachloroethane	0.100	U	mg/L	EPA 8240		07/10/95	07/11/95	MCM
Toluene	0.333	D	mg/L	EPA 8240		07/10/95	07/11/95	MCM
Ethylbenzene	0.108	D	mg/L	EPA 8240		07/10/95	07/11/95	MCM
Styrene	0.100	U	mg/L	EPA 8240		07/10/95	07/11/95	MCM
Xylene (total)	0.532	D	mg/L	EPA 8240		07/10/95	07/11/95	MCM

pH, Corrosivity	7.1		units	EPA 9040	2.0 - 12.5		07/05/95	BJS
degrees F, Flammability	GT 200		deg F	EPA 1010/1020	min 140		07/05/95	DHT
Reactivity	NONREACT			SW 846, 7.3			07/05/95	BJS
Boiling Point	GT 110		deg F	COC			07/04/95	DHT

See Special Instructions Above

See Sample Remarks Above

U = Undetected, Reported value is the practical quantification limit.

D = Secondary dilution.

UA = Unavailable

NA = Not Analyzed

LT = Less Than

GT = Greater Than



CT&E Environmental Services Inc.

Laboratory Division

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OCT 12 1995

PROJECT #

Laboratory Analysis Report

CT&E Ref.# 95.1850-1
Matrix WATER
Client Sample ID LIZ-LF01-4TB1

Client Name ICF KAISER ENGINEERING
Ordered By JOHN FRERICH
Project Name CAPE LISBURNE-LF01
Project# 41096-614-02
PWSID UA

WORK Order 14633
Printed Date 10/06/95 @ 15:49 hrs.
Collected Date 05/06/95 @ hrs.
Received Date 05/11/95 @ 12:30 hrs.

Technical Director STEPHEN C. EDE

Released By

Shane Patten

Sample Remarks: SAMPLE COLLECTED BY: C.C. AND JOHN P. FRERICH. CORRECTED RESULT.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Volatile Organics				EPA 8260				
Benzene	0.0010	U	mg/L	EPA 8260		05/15/95	05/15/95	BLS
Bromobenzene	0.0010	U	mg/L	EPA 8260		05/15/95	05/15/95	BLS
Bromochloromethane	0.0010	U	mg/L	EPA 8260		05/15/95	05/15/95	BLS
Bromodichloromethane	0.0010	U	mg/L	EPA 8260		05/15/95	05/15/95	BLS
Bromoform	0.0010	U	mg/L	EPA 8260		05/15/95	05/15/95	BLS
Bromomethane	0.0010	U	mg/L	EPA 8260		05/15/95	05/15/95	BLS
n-Butylbenzene	0.0010	U	mg/L	EPA 8260		05/15/95	05/15/95	BLS
sec-Butylbenzene	0.0010	U	mg/L	EPA 8260		05/15/95	05/15/95	BLS
tert-Butylbenzene	0.0010	U	mg/L	EPA 8260		05/15/95	05/15/95	BLS
Carbon Tetrachloride	0.0010	U	mg/L	EPA 8260		05/15/95	05/15/95	BLS
Chlorobenzene	0.0010	U	mg/L	EPA 8260		05/15/95	05/15/95	BLS
Chloroethane	0.0010	U	mg/L	EPA 8260		05/15/95	05/15/95	BLS
Chloroform	0.0010	U	mg/L	EPA 8260		05/15/95	05/15/95	BLS
Chloromethane	0.0010	U	mg/L	EPA 8260		05/15/95	05/15/95	BLS
2-Chlorotoluene	0.0010	U	mg/L	EPA 8260		05/15/95	05/15/95	BLS
4-Chlorotoluene	0.0010	U	mg/L	EPA 8260		05/15/95	05/15/95	BLS
Dibromochloromethane	0.0010	U	mg/L	EPA 8260		05/15/95	05/15/95	BLS
1,2-Dibromoethane	0.0010	U	mg/L	EPA 8260		05/15/95	05/15/95	BLS
Dibromomethane	0.0010	U	mg/L	EPA 8260		05/15/95	05/15/95	BLS
1,2-Dichlorobenzene	0.0010	U	mg/L	EPA 8260		05/15/95	05/15/95	BLS
1,3-Dichlorobenzene	0.0010	U	mg/L	EPA 8260		05/15/95	05/15/95	BLS
1,4-Dichlorobenzene	0.0010	U	mg/L	EPA 8260		05/15/95	05/15/95	BLS
Dichlorodifluoromethane	0.0010	U	mg/L	EPA 8260		05/15/95	05/15/95	BLS
1,1-Dichloroethane	0.0010	U	mg/L	EPA 8260		05/15/95	05/15/95	BLS
1,2-Dichloroethane	0.0010	U	mg/L	EPA 8260		05/15/95	05/15/95	BLS
1,1-Dichloroethene	0.0010	U	mg/L	EPA 8260		05/15/95	05/15/95	BLS
cis-1,2-Dichloroethene	0.0010	U	mg/L	EPA 8260		05/15/95	05/15/95	BLS
trans-1,2-Dichloroethene	0.0010	U	mg/L	EPA 8260		05/15/95	05/15/95	BLS
1,2-Dichloropropane	0.0010	U	mg/L	EPA 8260		05/15/95	05/15/95	BLS
1,3-Dichloropropane	0.0010	U	mg/L	EPA 8260		05/15/95	05/15/95	BLS
2,2-Dichloropropane	0.0010	U	mg/L	EPA 8260		05/15/95	05/15/95	BLS
1,1-Dichloropropene	0.0010	U	mg/L	EPA 8260		05/15/95	05/15/95	BLS
Ethylbenzene	0.0010	U	mg/L	EPA 8260		05/15/95	05/15/95	BLS
Hexachlorobutadiene	0.0010	U	mg/L	EPA 8260		05/15/95	05/15/95	BLS
Isopropylbenzene	0.0010	U	mg/L	EPA 8260		05/15/95	05/15/95	BLS

150 520:95

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ENVIRONMENTAL FACILITIES IN ALASKA, CALIFORNIA, FLORIDA, ILLINOIS, MARYLAND, MICHIGAN, MISSOURI, NEW JERSEY, OHIO, WEST VIRGINIA

**CT&E Environmental Services Inc.**

CT&E Ref.# 95.1850-1
Matrix WATER
Client Sample ID LIZ-LF01-4TB1

p-Isopropyltoluene	0.0010	U	mg/L	EPA 8260	05/15/95	05/15/95	BLS
Methylene Chloride	0.0010	U	mg/L	EPA 8260	05/15/95	05/15/95	BLS
Napthalene	0.0010	U	mg/L	EPA 8260	05/15/95	05/15/95	BLS
n-Propylbenzene	0.0010	U	mg/L	EPA 8260	05/15/95	05/15/95	BLS
Styrene	0.0010	U	mg/L	EPA 8260	05/15/95	05/15/95	BLS
1112-Tetrachloroethane	0.0010	U	mg/L	EPA 8260	05/15/95	05/15/95	BLS
1122-Tetrachloroethane	0.0010	U	mg/L	EPA 8260	05/15/95	05/15/95	BLS
Tetrachloroethene	0.0010	U	mg/L	EPA 8260	05/15/95	05/15/95	BLS
Toluene	0.0010	U	mg/L	EPA 8260	05/15/95	05/15/95	BLS
1,2,3-Trichlorobenzene	0.0010	U	mg/L	EPA 8260	05/15/95	05/15/95	BLS
1,2,4-Trichlorobenzene	0.0010	U	mg/L	EPA 8260	05/15/95	05/15/95	BLS
1,1,1-Trichloroethane	0.0011		mg/L	EPA 8260	05/15/95	05/15/95	BLS
1,1,2-Trichloroethane	0.0010	U	mg/L	EPA 8260	05/15/95	05/15/95	BLS
Trichloroethene	0.0010	U	mg/L	EPA 8260	05/15/95	05/15/95	BLS
Trichlorofluoromethane	0.0010	U	mg/L	EPA 8260	05/15/95	05/15/95	BLS
1,2,3-Trichloropropane	0.0010	U	mg/L	EPA 8260	05/15/95	05/15/95	BLS
1,2,4-Trimethylbenzene	0.0010	U	mg/L	EPA 8260	05/15/95	05/15/95	BLS
1,3,5-Trimethylbenzene	0.0010	U	mg/L	EPA 8260	05/15/95	05/15/95	BLS
Vinyl Chloride	0.0010	U	mg/L	EPA 8260	05/15/95	05/15/95	BLS
p+m-Xylene	0.0010	U	mg/L	EPA 8260	05/15/95	05/15/95	BLS
o-Xylene	0.0010	U	mg/L	EPA 8260	05/15/95	05/15/95	BLS

See Special Instructions Above

** See Sample Remarks Above

U = Undetected, Reported value is the practical quantification limit.

D = Secondary dilution.

UA = Unavailable

NA = Not Analyzed

LT = Less Than

GT = Greater Than



Commercial Testing & Engineering Co.
Environmental Laboratory Services

RECEIVED DEC 07 1994

LABORATORY ANALYSIS REPORT

CT&E Ref.# 94.4763-2
Client Sample ID LIS-ST07-3SW06
Matrix WATER

Client Name ICF KAISER ENGINEERING
Ordered By JEFF DAWSON
Project Name DEW LINE CAPE LISBURNE IRA
Project# 41096-514-02
PWSID UA

WORK Order 82368
Printed Date 11/29/94 @ 17:33 hrs.
Collected Date 09/13/94 @ 09:32 hrs.
Received Date 09/16/94 @ 11:00 hrs.

Technical Director STEPHEN C. EDE

Released By *Stephen Ede*

Sample Remarks: SAMPLE COLLECTED BY: JEFF DAWSON. EPH - TYPICAL PATTERN FOR DIESEL.
8270 ACID SURROGATES RECOVERIES ARE LOW DUE TO MATRIX INTERFERENCE;
ANALYZED TWICE. CORRECTED RESULTS.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Volatile Organics				EPA 8260				
Benzene	0.0013	J	mg/L	EPA 8260		09/25/94	09/25/94	KWM
Bromobenzene	0.0050	U	mg/L	EPA 8260		09/25/94	09/25/94	KWM
Bromochloromethane	0.0050	U	mg/L	EPA 8260		09/25/94	09/25/94	KWM
Bromodichloromethane	0.0050	U	mg/L	EPA 8260		09/25/94	09/25/94	KWM
Bromoform	0.0050	U	mg/L	EPA 8260		09/25/94	09/25/94	KWM
Bromomethane	0.0050	U	mg/L	EPA 8260		09/25/94	09/25/94	KWM
n-Butylbenzene	0.0050	U	mg/L	EPA 8260		09/25/94	09/25/94	KWM
sec-Butylbenzene	0.0050	U	mg/L	EPA 8260		09/25/94	09/25/94	KWM
tert-Butylbenzene	0.0050	U	mg/L	EPA 8260		09/25/94	09/25/94	KWM
Carbon Tetrachloride	0.0050	U	mg/L	EPA 8260		09/25/94	09/25/94	KWM
Chlorobenzene	0.0050	U	mg/L	EPA 8260		09/25/94	09/25/94	KWM
Chloroethane	0.0050	U	mg/L	EPA 8260		09/25/94	09/25/94	KWM
Chloroform	0.0050	U	mg/L	EPA 8260		09/25/94	09/25/94	KWM
Chloromethane	0.0050	U	mg/L	EPA 8260		09/25/94	09/25/94	KWM
2-Chlorotoluene	0.0050	U	mg/L	EPA 8260		09/25/94	09/25/94	KWM
4-Chlorotoluene	0.0050	U	mg/L	EPA 8260		09/25/94	09/25/94	KWM
Dibromochloromethane	0.0050	U	mg/L	EPA 8260		09/25/94	09/25/94	KWM
1,2-Dibromoethane	0.0050	U	mg/L	EPA 8260		09/25/94	09/25/94	KWM
1,1,2-Dibromoethane	0.0050	U	mg/L	EPA 8260		09/25/94	09/25/94	KWM
1,2-Dichlorobenzene	0.0050	U	mg/L	EPA 8260		09/25/94	09/25/94	KWM
1,3-Dichlorobenzene	0.0050	U	mg/L	EPA 8260		09/25/94	09/25/94	KWM
1,4-Dichlorobenzene	0.0050	U	mg/L	EPA 8260		09/25/94	09/25/94	KWM
Dichlorodifluoromethane	0.0050	U	mg/L	EPA 8260		09/25/94	09/25/94	KWM
1,1-Dichloroethane	0.0050	U	mg/L	EPA 8260		09/25/94	09/25/94	KWM
1,2-Dichloroethane	0.0050	U	mg/L	EPA 8260		09/25/94	09/25/94	KWM
1,1-Dichloroethene	0.0050	U	mg/L	EPA 8260		09/25/94	09/25/94	KWM
cis-1,2-Dichloroethene	0.0050	U	mg/L	EPA 8260		09/25/94	09/25/94	KWM
trans-1,2-Dichloroethene	0.0050	U	mg/L	EPA 8260		09/25/94	09/25/94	KWM
1,2-Dichloropropane	0.0050	U	mg/L	EPA 8260		09/25/94	09/25/94	KWM
1,3-Dichloropropane	0.0050	U	mg/L	EPA 8260		09/25/94	09/25/94	KWM
2,2-Dichloropropane	0.0050	U	mg/L	EPA 8260		09/25/94	09/25/94	KWM
1,1-Dichloropropene	0.0050	U	mg/L	EPA 8260		09/25/94	09/25/94	KWM
Ethylbenzene	0.010	D	mg/L	EPA 8260		09/25/94	09/25/94	KWM



Commercial Testing & Engineering Co.

Environmental Laboratory Services

LABORATORY ANALYSIS REPORT

CT&E Ref.# 94.4763-2
Client Sample ID LIS-ST07-3SW06
Matrix WATER

Hexachlorobutadiene	0.0050	U	mg/L	EPA 8260	09/25/94	09/25/94	KWM
Isopropylbenzene	0.0050	U	mg/L	EPA 8260	09/25/94	09/25/94	KWM
p-Isopropyltoluene	0.0050	U	mg/L	EPA 8260	09/25/94	09/25/94	KWM
Methylene Chloride	0.0050	U	mg/L	EPA 8260	09/25/94	09/25/94	KWM
Napthalene	0.118	D	mg/L	EPA 8260	09/25/94	09/25/94	KWM
n-Propylbenzene	0.0050	U	mg/L	EPA 8260	09/25/94	09/25/94	KWM
Styrene	0.0050	U	mg/L	EPA 8260	09/25/94	09/25/94	KWM
1112-Tetrachloroethane	0.0050	U	mg/L	EPA 8260	09/25/94	09/25/94	KWM
1122-Tetrachloroethane	0.0050	U	mg/L	EPA 8260	09/25/94	09/25/94	KWM
Tetrachloroethene	0.0050	U	mg/L	EPA 8260	09/25/94	09/25/94	KWM
Toluene	0.0050	U	mg/L	EPA 8260	09/25/94	09/25/94	KWM
1,2,3-Trichlorobenzene	0.0050	U	mg/L	EPA 8260	09/25/94	09/25/94	KWM
1,2,4-Trichlorobenzene	0.0050	U	mg/L	EPA 8260	09/25/94	09/25/94	KWM
1,1,1-Trichloroethane	0.0050	U	mg/L	EPA 8260	09/25/94	09/25/94	KWM
1,1,2-Trichloroethane	0.0050	U	mg/L	EPA 8260	09/25/94	09/25/94	KWM
Trichloroethene	0.0050	U	mg/L	EPA 8260	09/25/94	09/25/94	KWM
Trichlorofluoromethane	0.0050	U	mg/L	EPA 8260	09/25/94	09/25/94	KWM
1,2,3-Trichloropropane	0.0050	U	mg/L	EPA 8260	09/25/94	09/25/94	KWM
1,2,4-Trimethylbenzene	0.022	D	mg/L	EPA 8260	09/25/94	09/25/94	KWM
1,3,5-Trimethylbenzene	0.036	D	mg/L	EPA 8260	09/25/94	09/25/94	KWM
Vinyl Chloride	0.0050	U	mg/L	EPA 8260	09/25/94	09/25/94	KWM
p-m-Xylene	0.012	D	mg/L	EPA 8260	09/25/94	09/25/94	KWM
o-Xylene	0.0050	U	mg/L	EPA 8260	09/25/94	09/25/94	KWM
Diesel Range Organics	6.97	D	mg/L	AK 102.0 (2-93)	09/20/94	09/23/94	DRS
Semivolatile Organics				EPA 8270			
Phenol	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
bis(2-Chloroethyl)ether	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
2-Chlorophenol	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
1,3-Dichlorobenzene	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
1,4-Dichlorobenzene	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
Benzyl Alcohol	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
1,2-Dichlorobenzene	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
2-Methylphenol	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
bis(2-Chloroisopropyl) ether	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
4-Methylphenol	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
n-Nitroso-di-n-Propylamine	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
Hexachloroethane	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
Nitrobenzene	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
Isophorone	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
2-Nitrophenol	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
2,4-Dimethylphenol	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
Benzoic Acid	0.022	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
bis(2-Chloroethoxy)Methane	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
2,4-Dichlorophenol	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
1,2,4-Trichlorobenzene	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
Napthalene	0.012		mg/L	EPA 8270	09/20/94	09/23/94	JBH
4-Chloroaniline	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
Hexachlorobutadiene	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
2-Chloro-3-Methylphenol	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
1-Methylnapthalene	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH

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ENVIRONMENTAL FACILITIES IN ALASKA, COLORADO, FLORIDA, ILLINOIS, MARYLAND, NEW JERSEY, OHIO, UTAH, WEST VIRGINIA



Commercial Testing & Engineering Co.

Environmental Laboratory Services

LABORATORY ANALYSIS REPORT

CT&E Ref.# 94.4763-2
Client Sample ID LIS-ST07-3SW06
Matrix WATER

Hexachlorocyclopentadie	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
2,4,6-Trichlorophenol	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
2,4,5-Trichlorophenol	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
2-Chloronaphthalene	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
2-Nitroaniline	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
Dimethylphthalate	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
Acenaphthylene	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
2,6-Dinitrotoluene	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
3-Nitroaniline	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
Acenaphthene	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
2,4-Dinitrophenol	0.022	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
4-Nitrophenol	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
Dibenzofuran	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
2,4-Dinitrotoluene	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
Diethylphthalate	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
4-Chlorophenyl-Phenylen	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
Fluorene	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
4-Nitroaniline	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
4,6-Dinitro-2-Methylphe	0.022	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
n-Nitrosodiphenylamine	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
4-Bromophenyl-Phenyleth	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
Hexachlorobenzene	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
Pentachlorophenol	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
Phenanthrene	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
Anthracene	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
di-n-Butylphthalate	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
Fluoranthene	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
Pyrene	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
Butylbenzylphthalate	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
3,3-Dichlorobenzidine	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
Benzo (a) Anthracene	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
Chrysene	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
bis(2-Ethylhexyl) Phthal	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
di-n-Octylphthalate	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
Benzo (b) Fluoranthene	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
Benzo (k) Fluoranthene	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
Benzo (a) Pyrene	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
Indeno (1,2,3-cd) Pyrene	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
Dibenz (a,h) Anthracene	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH
Benzo (g,h,i) Perylene	0.0055	U	mg/L	EPA 8270	09/20/94	09/23/94	JBH

* See Special Instructions Above

** See Sample Remarks Above

U = Undetected, Reported value is the practical quantification limit.

D = Secondary dilution.

UA = Unavailable

NA = Not Analyzed

LT = Less Than

GT = Greater Than

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ENVIRONMENTAL FACILITIES IN ALASKA, COLORADO, FLORIDA, ILLINOIS, MARYLAND, NEW JERSEY, OHIO, UTAH, WEST VIRGINIA



CT&E Environmental Services Inc.

Laboratory Division

CT&E Ref.# 95.3524-1
Matrix WATER
Client Sample ID LISBURN LIS-ST07-68W07

Laboratory Analysis Report

Client Name ICF KAISER ENGINEERING
Ordered By
Project Name CAPE LISBURN IRA
Project# 41096-614-02
PWSID UA

ROSH Order 17340
Printed Date 08/24/95 @ 11:46 hrs
Collected Date 08/17/95 @ 16:45 hrs
Received Date 08/21/95 @ 12:15 hrs

Technical Director STEPHEN C. EDEN

Released By *Stephen C. Eden*

Sample Remarks: SAMPLE COLLECTED BY: G. JENSEN.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Eal. Date	Anal. Date	Init.
Petroleum Hydrocarbons	0.20	U	mg/L	EPA 418.1		08/21/95	08/21/95	SMK
Aromatics-BTEX				EPA 602 18AAC78	n/a			
Benzene	0.0010	U	mg/L	EPA 602 18AAC78		08/21/95	08/21/95	MMP
Toluene	0.0010	U	mg/L	EPA 602 18AAC78		08/21/95	08/21/95	MMP
Ethylbenzene	0.0010	U	mg/L	EPA 602 18AAC78		08/21/95	08/21/95	MMP
p+m Xylene	0.0010	U	mg/L	EPA 602 18AAC78		08/21/95	08/21/95	MMP
o-Xylene	0.0010	U	mg/L	EPA 602 18AAC78		08/21/95	08/21/95	MMP

See Special Instructions Above

See Sample Remarks Above

U = Undetected, Reported value is the practical quantification limit.

D = Secondary dilution

UA = Unavailable

NA = Not Analyzed

LT = Less Than

GT = Greater Than

200 W Potter Drive Anchorage, AK 99518-1605 Tel: (907) 562-2343 Fax: (907) 561-5301

ENVIRONMENTAL FACILITIES IN ALASKA, CALIFORNIA, FLORIDA, ILLINOIS, MARYLAND, MICHIGAN, MISSOURI, NEW JERSEY, OHIO, WEST VIRGINIA

200 122 NO. 271 112522-888-0011 08/24/95 16:45



CT&E Environmental Services Inc.

CT&E Ref.# 95.3524-2
Matrix WATER
Client Sample ID LISBURN LIS-ST07-82W08

65W 244

Client Name ICF KAISER ENGINEERING
Ordered By
Project Name CAPE LISBURN IRA
Project# 41096-614-02
PWSID UA

RUSH Order 17340
Printed Date 08/24/95 @ 11:44 hrs.
Collected Date 08/17/95 @ 16:50 hrs.
Received Date 08/21/95 @ 12:15 hrs.

Technical Director STEPHEN C. EDWARDS

Released By

Stephen C. Edwards

Sample Remarks: SAMPLE COLLECTED BY: G. JENSEN.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Petroleum Hydrocarbons	0.20	U	mg/L	EPA 418.1		08/23/95	08/23/95	SMK
Aromatics-BTEX				EPA 602 18AAC78	n/a			
Benzene	0.0010	U	mg/L	EPA 602 18AAC78		08/21/95	08/21/95	MMP
Toluene	0.0010	U	mg/L	EPA 602 18AAC78		08/21/95	08/21/95	MMP
Ethylbenzene	0.0010	U	mg/L	EPA 602 18AAC78		08/21/95	08/21/95	MMP
p-xylene	0.0010	U	mg/L	EPA 602 18AAC78		08/21/95	08/21/95	MMP
m-xylene	0.0010	U	mg/L	EPA 602 18AAC78		08/21/95	08/21/95	MMP

See Special Instructions Above
See Sample Remarks Above
U = Undetected, Reported value is the practical quantification limit.
D = Secondary dilution

UAX = Unavailable
NAX = Not Analyzed
LT = Less Than
GT = Greater Than



Commercial Testing & Engineering Co.

Environmental Laboratory Services

REPORT of ANALYSIS

CE Ref.# :94.4763-1
Client Sample ID :LIS-ST07-3TB02
Matrix :WATER

5633 B Street
Anchorage, AK 99518-1600
Tel: (907) 562-2343
Fax: (907) 561-5301

Client Name :ICF KAISER ENGINEERING
Ordered By :JEFF DAWSON
Project Name :DEW LINE CAPE LISBURNE IRA
Project# :41096-514-02
PWSID :UA

WORK Order :82368
Printed Date :10/14/94 @ 13:36 hrs.
Collected Date :09/13/94 @ 08:00 hrs.
Received Date :09/16/94 @ 11:00 hrs.
Technical
Director :STEPHEN C. EDE
Released By : *Shane P. L.*

Sample Remarks: SAMPLE COLLECTED BY: JEFF DAWSON.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Volatile Organics				EPA 8260				
Benzene	0.0010	U	mg/L	EPA 8260		09/24	09/24	KWM
Bromobenzene	0.0010	U	mg/L	EPA 8260		09/24	09/24	KWM
Bromochloromethane	0.0010	U	mg/L	EPA 8260		09/24	09/24	KWM
Bromodichloromethane	0.0010	U	mg/L	EPA 8260		09/24	09/24	KWM
Bromoform	0.0010	U	mg/L	EPA 8260		09/24	09/24	KWM
Bromomethane	0.0010	U	mg/L	EPA 8260		09/24	09/24	KWM
n-Butylbenzene	0.0010	U	mg/L	EPA 8260		09/24	09/24	KWM
sec-Butylbenzene	0.0010	U	mg/L	EPA 8260		09/24	09/24	KWM
tert-Butylbenzene	0.0010	U	mg/L	EPA 8260		09/24	09/24	KWM
Carbon Tetrachloride	0.0010	U	mg/L	EPA 8260		09/24	09/24	KWM
Chlorobenzene	0.0010	U	mg/L	EPA 8260		09/24	09/24	KWM
Chloroethane	0.0010	U	mg/L	EPA 8260		09/24	09/24	KWM
Chloroform	0.0010	U	mg/L	EPA 8260		09/24	09/24	KWM
Chloromethane	0.0010	U	mg/L	EPA 8260		09/24	09/24	KWM
2-Chlorotoluene	0.0010	U	mg/L	EPA 8260		09/24	09/24	KWM
4-Chlorotoluene	0.0010	U	mg/L	EPA 8260		09/24	09/24	KWM
Dibromochloromethane	0.0010	U	mg/L	EPA 8260		09/24	09/24	KWM
1,2-Dibromoethane	0.0010	U	mg/L	EPA 8260		09/24	09/24	KWM
1,2-Dichlorobenzene	0.0010	U	mg/L	EPA 8260		09/24	09/24	KWM
1,3-Dichlorobenzene	0.0010	U	mg/L	EPA 8260		09/24	09/24	KWM
1,4-Dichlorobenzene	0.0010	U	mg/L	EPA 8260		09/24	09/24	KWM
Dichlorodifluoromethane	0.0010	U	mg/L	EPA 8260		09/24	09/24	KWM
1,1-Dichloroethane	0.0010	U	mg/L	EPA 8260		09/24	09/24	KWM
1,2-Dichloroethane	0.0010	U	mg/L	EPA 8260		09/24	09/24	KWM
1,1-Dichloroethene	0.0010	U	mg/L	EPA 8260		09/24	09/24	KWM
cis-1,2-Dichloroethene	0.0010	U	mg/L	EPA 8260		09/24	09/24	KWM
trans-1,2-Dichloroethene	0.0010	U	mg/L	EPA 8260		09/24	09/24	KWM
1,2-Dichloropropane	0.0010	U	mg/L	EPA 8260		09/24	09/24	KWM
1,3-Dichloropropane	0.0010	U	mg/L	EPA 8260		09/24	09/24	KWM
2,2-Dichloropropane	0.0010	U	mg/L	EPA 8260		09/24	09/24	KWM
1,1-Dichloropropene	0.0010	U	mg/L	EPA 8260		09/24	09/24	KWM
Ethylbenzene	0.0010	U	mg/L	EPA 8260		09/24	09/24	KWM
Hexachlorobutadiene	0.0010	U	mg/L	EPA 8260		09/24	09/24	KWM
Isopropylbenzene	0.0010	U	mg/L	EPA 8260		09/24	09/24	KWM

1-7200416



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ENVIRONMENTAL FACILITIES IN ALASKA, COLORADO, FLORIDA, ILLINOIS, MARYLAND, NEW JERSEY, OHIO, UTAH, WEST VIRGINIA



Commercial Testing & Engineering Co.

Environmental Laboratory Services

REPORT of ANALYSIS

5633 B Street
Anchorage, AK 99518-1600
Tel: (907) 562-2343
Fax: (907) 561-5301

CT&E Ref.# :94.4763-1
Client Sample ID :LIS-ST07-3TB02
Matrix :WATER

p-Isopropyltoluene	0.0010	U	mg/L	EPA 8260	09/24	09/24	KWM
Methylene Chloride	0.0010	U	mg/L	EPA 8260	09/24	09/24	KWM
Napthalene	0.0010	U	mg/L	EPA 8260	09/24	09/24	KWM
n-Propylbenzene	0.0010	U	mg/L	EPA 8260	09/24	09/24	KWM
Styrene	0.0010	U	mg/L	EPA 8260	09/24	09/24	KWM
1112-Tetrachloroethane	0.0010	U	mg/L	EPA 8260	09/24	09/24	KWM
1122-Tetrachloroethane	0.0010	U	mg/L	EPA 8260	09/24	09/24	KWM
Tetrachloroethene	0.0010	U	mg/L	EPA 8260	09/24	09/24	KWM
Toluene	0.0010	U	mg/L	EPA 8260	09/24	09/24	KWM
1,2,3-Trichlorobenzene	0.0010	U	mg/L	EPA 8260	09/24	09/24	KWM
1,2,4-Trichlorobenzene	0.0010	U	mg/L	EPA 8260	09/24	09/24	KWM
1,1,1-Trichloroethane	0.0010	U	mg/L	EPA 8260	09/24	09/24	KWM
1,1,2-Trichloroethane	0.0010	U	mg/L	EPA 8260	09/24	09/24	KWM
Trichloroethene	0.0010	U	mg/L	EPA 8260	09/24	09/24	KWM
Trichlorofluoromethane	0.0010	U	mg/L	EPA 8260	09/24	09/24	KWM
1,2,3-Trichloropropane	0.0010	U	mg/L	EPA 8260	09/24	09/24	KWM
1,2,4-Trimethylbenzene	0.0010	U	mg/L	EPA 8260	09/24	09/24	KWM
1,3,5-Trimethylbenzene	0.0010	U	mg/L	EPA 8260	09/24	09/24	KWM
Vinyl Chloride	0.0010	U	mg/L	EPA 8260	09/24	09/24	KWM
p-m-Xylene	0.0010	U	mg/L	EPA 8260	09/24	09/24	KWM
o-Xylene	0.0010	U	mg/L	EPA 8260	09/24	09/24	KWM

* See Special Instructions Above

** See Sample Remarks Above

U = Undetected, Reported value is the practical quantification limit.

D = Secondary dilution.

UA = Unavailable

NA = Not Analyzed

LT = Less Than

GT = Greater Than



Member of the SGS Group (Société Générale de Surveillance)

ENVIRONMENTAL FACILITIES IN ALASKA, COLORADO, FLORIDA, ILLINOIS, MARYLAND, NEW JERSEY, OHIO, UTAH, WEST VIRGINIA



COMMERCIAL TESTING & ENGINEERING CO.

ENVIRONMENTAL LABORATORY SERVICES

REPORT of ANALYSIS

Chemlab Ref.: 193.4727-12
Client Sample ID: LIS-W02
Matrix: SOIL

3333 B STREET
NORFOLK, VA 23513
TEL: (800) 552-2343
FAX: (800) 552-5537

Client Name: ICF KAISER ENGINEERING
Ordered By: RAY MORRIS
Project Name: DEW LINE RI/FS CAPE LISB.
Project#: 41096-412-01
PWSID: UA

WORK Order: 70811
Report Completed: 10/29/93
Collected: 09/09/93 @ 18:10 hrs
Received: 09/10/93 @ 15:55 hrs
Technical Director: STEPHEN C. FDE
Released By: *[Signature]*

Sample Remarks: SAMPLE COLLECTED BY: ALEX POLANSKY. LOW SURROGATE RECOVERY ON 8270
POSSIBLY DUE TO MATRIX INTERFERENCE. A WHITE EMULSION FORMED WHEN
NAOH WAS ADDED.

Chapman/Remond

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
<hr/>								
Volatile Organics				EPA 8260				
Benzene	0.069		mg/Kg	EPA 8260	(5)-A.1	09/15	10/01	KWM
Bromobenzene	0.025	U	mg/Kg	EPA 8260		09/15	10/01	KWM
Bromochloromethane	0.025	U	mg/Kg	EPA 8260		09/15	10/01	KWM
Bromodichloromethane	0.025	U	mg/Kg	EPA 8260		09/15	10/01	KWM
Bromoform	0.025	U	mg/Kg	EPA 8260		09/15	10/01	KWM
Bromomethane	0.025	U	mg/Kg	EPA 8260		09/15	10/01	KWM
n-Butylbenzene	0.029		mg/Kg	EPA 8260		09/15	10/01	KWM
sec-Butylbenzene	0.025	U	mg/Kg	EPA 8260		09/15	10/01	KWM
tert-Butylbenzene	0.025	U	mg/Kg	EPA 8260		09/15	10/01	KWM
Carbon Tetrachloride	0.515		mg/Kg	EPA 8260		09/15	10/01	KWM
Chlorobenzene	0.025	U	mg/Kg	EPA 8260		09/15	10/01	KWM
Chloroethane	0.025	U	mg/Kg	EPA 8260		09/15	10/01	KWM
Chloroform	0.025	U	mg/Kg	EPA 8260		09/15	10/01	KWM
Chloromethane	0.025	U	mg/Kg	EPA 8260		09/15	10/01	KWM
2-Chlorotoluene	0.025	U	mg/Kg	EPA 8260		09/15	10/01	KWM
4-Chlorotoluene	0.025	U	mg/Kg	EPA 8260		09/15	10/01	KWM
Dibromochloromethane	0.025	U	mg/Kg	EPA 8260		09/15	10/01	KWM
1,2-Dibromoethane	0.025	U	mg/Kg	EPA 8260		09/15	10/01	KWM
Dibromomethane	0.025	U	mg/Kg	EPA 8260		09/15	10/01	KWM
1,2-Dichlorobenzene	0.025	U	mg/Kg	EPA 8260		09/15	10/01	KWM
1,3-Dichlorobenzene	0.025	U	mg/Kg	EPA 8260		09/15	10/01	KWM
1,4-Dichlorobenzene	0.052		mg/Kg	EPA 8260		09/15	10/01	KWM
Dichlorodifluoromethane	0.025	U	mg/Kg	EPA 8260		09/15	10/01	KWM
1,1-Dichloroethane	0.025	U	mg/Kg	EPA 8260		09/15	10/01	KWM
1,2-Dichloroethane	0.025	U	mg/Kg	EPA 8260		09/15	10/01	KWM
1,1-Dichloroethene	0.025	U	mg/Kg	EPA 8260		09/15	10/01	KWM
cis-1,2-Dichloroethene	0.025	U	mg/Kg	EPA 8260		09/15	10/01	KWM
trans-1,2-Dichloroethene	0.025	U	mg/Kg	EPA 8260		09/15	10/01	KWM
1,2-Dichloropropane	0.025	U	mg/Kg	EPA 8260		09/15	10/01	KWM
1,3-Dichloropropane	0.025	U	mg/Kg	EPA 8260		09/15	10/01	KWM
2,2-Dichloropropane	0.025	U	mg/Kg	EPA 8260		09/15	10/01	KWM
1,1-Dichloropropene	0.025	U	mg/Kg	EPA 8260		09/15	10/01	KWM
Ethylbenzene	0.237		mg/Kg	EPA 8260		09/15	10/01	KWM
Hexachlorobutadiene	0.025	U	mg/Kg	EPA 8260	✓	09/15	10/01	KWM

3-30-94



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ENVIRONMENTAL SERVICES IN ALASKA-COLORADO, UTAH, ILLINOIS, OHIO, MARYLAND, WEST VIRGINIA, NEW JERSEY, SOUTH CAROLINA



COMMERCIAL TESTING & ENGINEERING CO.

ENVIRONMENTAL LABORATORY SERVICES

REPORT OF ANALYSIS

Chemlab Ref.# :93.4727-12
Client Sample ID :LIS-W02
Matrix :SOIL

5533 B STREET
ANCHORAGE, AK 99513
TEL: (907) 552-2343
FAX: (907) 551-5301

Qualification/Comments

Isopropylbenzene	0.025	U	mg/Kg	EPA 8260 (JD)-A.1	09/15	10/01	KWT
p-Isopropyltoluene	0.025	U	mg/Kg	EPA 8260	09/15	10/01	KWT
Methylene Chloride	0.025	U	mg/Kg	EPA 8260	09/15	10/01	KWT
Napthalene	0.029		mg/Kg	EPA 8260	09/15	10/01	KWT
n-Propylbenzene	0.069		mg/Kg	EPA 8260	09/15	10/01	KWT
Styrene	0.025	U	mg/Kg	EPA 8260	09/15	10/01	KWT
1112-Tetrachloroethane	0.025	U	mg/Kg	EPA 8260	09/15	10/01	KWT
1122-Tetrachloroethane	0.025	U	mg/Kg	EPA 8260	09/15	10/01	KWT
Tetrachloroethene	0.025	U	mg/Kg	EPA 8260	09/15	10/01	KWT
Toluene	0.751		mg/Kg	EPA 8260	09/15	10/01	KWT
1,2,3-Trichlorobenzene	1.16		mg/Kg	EPA 8260	09/15	10/01	KWT
1,2,4-Trichlorobenzene	6.84	D	mg/Kg	EPA 8260	09/15	10/01	KWT
1,1,1-Trichloroethane	0.025	U	mg/Kg	EPA 8260	09/15	10/01	KWT
1,1,2-Trichloroethane	0.025	U	mg/Kg	EPA 8260	09/15	10/01	KWT
Trichloroethene	0.025	U	mg/Kg	EPA 8260	09/15	10/01	KWT
Trichlorofluoromethane	0.025	U	mg/Kg	EPA 8260	09/15	10/01	KWT
1,2,3-Trichloropropane	0.025	U	mg/Kg	EPA 8260	09/15	10/01	KWT
1,2,4-Trimethylbenzene	0.418		mg/Kg	EPA 8260	09/15	10/01	KWT
1,3,5-Trimethylbenzene	0.142		mg/Kg	EPA 8260	09/15	10/01	KWT
Vinyl Chloride	0.025	U	mg/Kg	EPA 8260	09/15	10/01	KWT
p+m-Xylene	1.06		mg/Kg	EPA 8260	09/15	10/01	KWT
o-Xylene	0.384		mg/Kg	EPA 8260	09/15	10/01	KWT

TCLP Extraction ---
TCLP Extraction/ZHE ---
Toxicity Characteristic
Characterization, Full ---
Aqueous Phase, Total ---
.....Water Content ---
.....Glycol Content ---
.....Alcohol Content ---
Oil Phase, Total ---
Solid Phase, Total 100

SW 846 1311
EPA 1311
EPA 1311

3.30-94

09/16

BJS

Karl Fischer
G.C.
G.C.

09/15 TJV

Arsenic	0.005	U	mg/L	EPA 7060/7061	5.0	09/19	09/20	BMW
Barium	10		mg/L	EPA 7080/6010	100.0	09/19	09/20	DEG
Benzene	0.0010	U	mg/L	EPA 8020/8240	0.5	09/17	09/27	MCH
Cadmium	0.50	U	mg/L	EPA 7131/6010	1.0	09/19	09/20	DEG
Carbon Tetrachloride	0.012		mg/L	EPA 8010/8240	0.5	09/17	09/27	MCH
Chlordane	0.010	U	mg/L	EPA 8080/8270	0.03			
Chlorobenzene	0.0010	U	mg/L	EPA 8010/8240	100	09/17	09/27	MCH
Chloroform	0.010	U	mg/L	EPA 8010/8240	6.0	09/17	09/27	MCH
Chromium	0.50	U	mg/L	EPA 6010/7191	5.0	09/19	09/20	DEG
o-Cresol	0.017	U	mg/L	EPA 8040/8270	200	09/21	10/10	GV
m-Cresol	0.017	U	mg/L	EPA 8040/8270	200	09/21	10/10	GV
p-Cresol	0.017	U	mg/L	EPA 8040/8270	200	09/21	10/10	GV
2,4-D	0.00080	U	mg/L	EPA 8150	10.0	09/22	09/24	NRC
1,4-Dichlorobenzene	0.0010	U	mg/L	EPA 8010/8240	7.5	09/17	09/27	MCH
1,2-Dichloroethane	0.0010	U	mg/L	EPA 8080/8240	0.5	09/17	09/27	MCH
1,1-Dichloroethylene	0.0010	U	mg/L	EPA 8010/8240	0.7	09/17	09/27	MCH
2,4-Dinitrotoluene	0.017	U	mg/L	EPA 8270	0.13	09/21	10/10	GV



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COMMERCIAL TESTING & ENGINEERING CO.

ENVIRONMENTAL LABORATORY SERVICES

Chemical Ref.# :93.4727-12
Client Sample ID :LIS-W02
Matrix :SOIL

REPORT OF ANALYSIS

1113 STAE
2000 1113 STAE
1113 STAE
1113 STAE

Endrin	0.0010	U	mg/L	EPA 8080	0.02	09/22	09/24	
Heptachlor	0.0010	U	mg/L	EPA 8080	0.008	09/22	09/24	
Hexachlorobenzene	0.017	U	mg/L	EPA 8270	0.13	09/21	10/10	
Hexachloro-1,3-Butadien	0.017	U	mg/L	EPA 8270	0.5	09/21	10/10	
Hexachloroethane	0.017	U	mg/L	EPA 8270	3.0	09/21	10/10	
Lead	1.0	U	mg/L	EPA 7421/6010	5.0	09/19	09/20	
Lindane	0.0010	U	mg/L	EPA 8080	0.4	09/22	09/24	
Mercury	0.002	U	mg/L	EPA 7470	0.2	09/20	09/20	
Methoxychlor	0.0010	U	mg/L	EPA 8080	10.0	09/22	09/24	
Methyl Ethyl Ketone	0.010	U	mg/L	EPA 8015/8240	200.0	09/17	09/27	
Nitrobenzene	0.017	U	mg/L	EPA 8270	2.0	09/21	10/10	
Pentachlorophenol	0.017	U	mg/L	EPA 8270	100.0	09/21	10/10	
Pyridine	0.017	U	mg/L	EPA 8270	5.0	09/21	10/10	
Selenium	0.005	U	mg/L	EPA 7740/7741	1.0	09/19	09/20	
Silver	0.1	U	mg/L	EPA 7760/6010	5.0	09/19	09/20	
Tetrachloroethylene	0.0010	U	mg/L	EPA 8010/8240	0.7	09/17	09/27	
Toxaphene	0.010	U	mg/L	EPA 8080	0.5	09/22	09/24	
Trichloroethylene	0.0010	U	mg/L	EPA 8010/8240	0.5	09/17	09/27	
2,4,5-Trichlorophenol	0.017	U	mg/L	EPA 8270	400	09/21	10/10	
2,4,6-Trichlorophenol	0.017	U	mg/L	EPA 8270	2.0	09/21	10/10	
2,4,5-TP(Silvex)	0.00080	U	mg/L	EPA 8150	1.0	09/22	09/24	
Vinyl Chloride	0.0010	U	mg/L	EPA 8010/8240	0.2	09/17	09/27	
Ignitability, Setaflash	GT 200		deg F	EPA 1020	140 min	09/21		
pH, Corrosivity	6.8			EPA 9040	2.0 - 12.5	09/21		
Reactivity	NONREACT			EPA SW846, 7.3.2	non react	09/21		

* See Special Instructions Above
** See Sample Remarks Above
U = Undetected, Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than



Member of the SGS Group (Societe Generale de Surveillance)

ENVIRONMENTAL SERVICES IN ALABAMA COLORADO ILLINOIS INDIANA KANSAS



COMMERCIAL TESTING & ENGINEERING CO.

ENVIRONMENTAL LABORATORY SERVICES

REPORT of ANALYSIS

Chemlab Ref.# :93.4512-3
Client Sample ID :LIS-AB01 CAPE LIS
Matrix :WATER

5633 B STREET
ANCHORAGE, AK 99518
TEL: (907) 562-2343
FAX: (907) 561-5301

Client Name :ICF KAISER ENGINEERING
Ordered By :RAY MORRIS
Project Name :DEW LINE RI/FS CAPE LIS
Project# :41096-412-01
PWSID :UA

WORK Order :70391
Report Completed :11/03/93
Collected :08/31/93 @ 08:48 hrs
Received :09/01/93 @ 12:00 hrs
Technical Director:STEPHEN C. EDE
Released By : *[Signature]*

Sample Remarks: SAMPLE COLLECTED BY: JEFF J. DAWSON AND J.P.

Parameter	Results	QC	Qual	Units	Method	Allowable Limits	Ext. Date	Anal. Date	Init.
Volatile Organics					EPA 8260				
Benzene	0.0010	U		mg/L	EPA 8260		09/04	09/04	SGH
Bromobenzene	0.0010	U		mg/L	EPA 8260		09/04	09/04	SGH
Bromochloromethane	0.0010	U		mg/L	EPA 8260	UJ /L.1	09/04	09/04	SGH
Bromodichloromethane	0.0010	U		mg/L	EPA 8260		09/04	09/04	SGH
Bromoform	0.0010	U		mg/L	EPA 8260		09/04	09/04	SGH
Bromomethane	0.0010	U		mg/L	EPA 8260	UJ /L.1	09/04	09/04	SGH
n-Butylbenzene	0.0010	U		mg/L	EPA 8260		09/04	09/04	SGH
sec-Butylbenzene	0.0010	U		mg/L	EPA 8260		09/04	09/04	SGH
tert-Butylbenzene	0.0010	U		mg/L	EPA 8260		09/04	09/04	SGH
Carbon Tetrachloride	0.0010	U		mg/L	EPA 8260		09/04	09/04	SGH
Chlorobenzene	0.0010	U		mg/L	EPA 8260		09/04	09/04	SGH
Chloroethane	0.0010	U		mg/L	EPA 8260	UJ /L.1	09/04	09/04	SGH
Chloroform	0.0010	U		mg/L	EPA 8260	UJ /L.1	09/04	09/04	SGH
Chloromethane	0.0010	U		mg/L	EPA 8260	UJ /L.1	09/04	09/04	SGH
2-Chlorotoluene	0.0010	U		mg/L	EPA 8260		09/04	09/04	SGH
4-Chlorotoluene	0.0010	U		mg/L	EPA 8260		09/04	09/04	SGH
Dibromochloromethane	0.0010	U		mg/L	EPA 8260		09/04	09/04	SGH
1,2-Dibromo3Chloropropane	0.0010	U		mg/L	EPA 8260		09/04	09/04	SGH
1,2-Dibromoethane	0.0010	U		mg/L	EPA 8260		09/04	09/04	SGH
Dibromomethane	0.0010	U		mg/L	EPA 8260		09/04	09/04	SGH
1,2-Dichlorobenzene	0.0010	U		mg/L	EPA 8260		09/04	09/04	SGH
1,3-Dichlorobenzene	0.0010	U		mg/L	EPA 8260		09/04	09/04	SGH
1,4-Dichlorobenzene	0.0010	U		mg/L	EPA 8260		09/04	09/04	SGH
Dichlorodifluoromethane	0.0010	U		mg/L	EPA 8260		09/04	09/04	SGH
1,1-Dichloroethane	0.0010	U		mg/L	EPA 8260	UJ /L.1	09/04	09/04	SGH
1,2-Dichloroethane	0.0010	U		mg/L	EPA 8260	UJ /L.1	09/04	09/04	SGH
1,1-Dichloroethene	0.0010	U		mg/L	EPA 8260	UJ /L.1	09/04	09/04	SGH
cis-1,2-Dichloroethene	0.0010	U		mg/L	EPA 8260	UJ /L.1	09/04	09/04	SGH
trans-1,2-Dichloroethene	0.0010	U		mg/L	EPA 8260	UJ /L.1	09/04	09/04	SGH
1,2-Dichloropropane	0.0010	U		mg/L	EPA 8260		09/04	09/04	SGH
1,3-Dichloropropane	0.0010	U		mg/L	EPA 8260		09/04	09/04	SGH
2,2-Dichloropropane	0.0010	U		mg/L	EPA 8260		09/04	09/04	SGH
1,1-Dichloropropene	0.0010	U		mg/L	EPA 8260		09/04	09/04	SGH
Ethylbenzene	0.0010	U		mg/L	EPA 8260		09/04	09/04	SGH
Hexachlorobutadiene	0.0010	U		mg/L	EPA 8260		09/04	09/04	SGH
Isopropylbenzene	0.0010	U		mg/L	EPA 8260		09/04	09/04	SGH
p-Isopropyltoluene	0.0010	U		mg/L	EPA 8260		09/04	09/04	SGH



Member of the SGS Group (Société Générale de Surveillance)

ENVIRONMENTAL SERVICES IN ALASKA, COLORADO, UTAH, ILLINOIS, OHIO, MARYLAND, WEST VIRGINIA, NEW JERSEY, SOUTH CAROLINA



COMMERCIAL TESTING & ENGINEERING CO.

ENVIRONMENTAL LABORATORY SERVICES

REPORT of ANALYSIS

Chemlab Ref.# :93.4512-3
Client Sample ID :LIS-AB01 CAPE LIS
Matrix :WATER

5633 B STREET
ANCHORAGE, AK 99518
TEL: (907) 562-2343
FAX: (907) 561-5301

Methylene Chloride	0.013		mg/L	EPA 8260	J / L.I	09/04	09/04	SGM
Napthalene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
n-Propylbenzene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
Styrene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
1112-Tetrachloroethane	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
1122-Tetrachloroethane	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
Tetrachloroethene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
Toluene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
1,2,3-Trichlorobenzene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
1,2,4-Trichlorobenzene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
1,1,1-Trichloroethane	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
1,1,2-Trichloroethane	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
Trichloroethene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
Trichlorofluoromethane	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
1,2,3-Trichloropropane	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
1,2,4-Trimethylbenzene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
1,3,5-Trimethylbenzene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
Vinyl Chloride	0.0010	U	mg/L	EPA 8260	UJ / L.I	09/04	09/04	SGM
p+m-Xylene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM
o-Xylene	0.0010	U	mg/L	EPA 8260		09/04	09/04	SGM

* See Special Instructions Above
* See Sample Remarks Above
U = Undetected, Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than



Member of the SGS Group (Société Générale de Surveillance)

ENVIRONMENTAL SERVICES IN ALASKA, COLORADO, UTAH, ILLINOIS, OHIO, MARYLAND, WEST VIRGINIA, NEW JERSEY, SOUTH CAROLINA



COMMERCIAL TESTING & ENGINEERING CO.

ENVIRONMENTAL LABORATORY SERVICES

REPORT of ANALYSIS

Chemlab Ref.# :93.4727-10
Client Sample ID :LIS-2EB04
Matrix :WATER

5533 B STREET
ANCHORAGE, AK 99518
TEL: (907) 552-2343
FAX: (907) 551-5331

Client Name :ICF KAISER ENGINEERING
Ordered By :RAY MORRIS
Project Name :DEW LINE RI/FS CAPE LISB.
Project# :41096-412-01
PWSID :UA

WORK Order :70811
Report Completed :10/29/93
Collected :09/09/93 @ 17:00 hrs
Received :09/10/93 @ 15:55 hrs
Technical Director:STEPHEN C. EDE
Released By : *[Signature]*

Sample Remarks: SAMPLE COLLECTED BY: ALEX POLANSKY.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal. Date	Init
Hydrocarbons VPH	0.020	U	mg/L	EPA 5030/8015M		09/13	09/13	WLS
Volatile Organics				EPA 8260				
Benzene	0.0010	U	mg/L	EPA 8260 (J) - A.1		09/21	09/21	MCH
Bromobenzene	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCH
Bromochloromethane	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCH
Bromodichloromethane	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCH
Bromoform	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCH
Bromomethane	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCH
n-Butylbenzene	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCH
sec-Butylbenzene	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCH
tert-Butylbenzene	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCH
Carbon Tetrachloride	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCH
Chlorobenzene	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCH
Chloroethane	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCH
Chloroform	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCH
Chloromethane	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCH
2-Chlorotoluene	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCH
4-Chlorotoluene	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCH
Dibromochloromethane	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCH
1,2-Dibromo3Chloropropane	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCH
1,2-Dibromoethane	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCH
Dibromomethane	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCH
1,2-Dichlorobenzene	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCH
1,3-Dichlorobenzene	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCH
1,4-Dichlorobenzene	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCH
Dichlorodifluoromethane	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCH
1,1-Dichloroethane	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCH
1,2-Dichloroethane	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCH
1,1-Dichloroethene	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCH
cis-1,2-Dichloroethene	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCH
trans-1,2-Dichloroethene	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCH
1,2-Dichloropropane	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCH
1,3-Dichloropropane	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCH
2,2-Dichloropropane	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCH
1,1-Dichloropropene	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCH
Ethylbenzene	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCH
Hexachlorobutadiene	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCH



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ENVIRONMENTAL SERVICES IN ALASKA, COLORADO, UTAH, ILLINOIS, OHIO, MARYLAND, WEST VIRGINIA, NEW JERSEY, SOUTH CAROLINA



COMMERCIAL TESTING & ENGINEERING CO.
ENVIRONMENTAL LABORATORY SERVICES

REPORT OF ANALYSIS

Chemlab Ref.# :93.4727-10
Client Sample ID :LIS-2EB04
Matrix :WATER

5633 B STREET
ANCHORAGE, AK 99518
TEL: (907) 582-2343
FAX: (907) 581-5331

Isopropylbenzene	0.0010	U	mg/L	EPA 8260	150-4.1	09/21	09/21	MCM
p-Isopropyltoluene	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCM
Methylene Chloride	0.0035		mg/L	EPA 8260		09/21	09/21	MCM
Napthalene	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCM
n-Propylbenzene	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCM
Styrene	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCM
1112-Tetrachloroethane	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCM
1122-Tetrachloroethane	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCM
Tetrachloroethene	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCM
Toluene	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCM
1,2,3-Trichlorobenzene	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCM
1,2,4-Trichlorobenzene	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCM
1,1,1-Trichloroethane	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCM
1,1,2-Trichloroethane	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCM
Trichloroethene	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCM
Trichlorofluoromethane	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCM
1,2,3-Trichloropropane	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCM
1,2,4-Trimethylbenzene	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCM
1,3,5-Trimethylbenzene	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCM
Vinyl Chloride	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCM
p+m-Xylene	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCM
o-Xylene	0.0010	U	mg/L	EPA 8260		09/21	09/21	MCM

CB
3-30-94

* See Special Instructions Above
** See Sample Remarks Above
U = Undetected, Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than



COMMERCIAL TESTING & ENGINEERING CO.

ENVIRONMENTAL LABORATORY SERVICES

REPORT OF ANALYSIS

Chemlab Ref.# :93.4727-9
Client Sample ID :LIS-2TB04
Matrix :WATER

5333 B STREET
ANCHORAGE, AK 99518
TEL: (907) 552-2343
FAX: (907) 551-5331

Client Name :ICF KAISER ENGINEERING
Ordered By :RAY MORRIS
Project Name :DEW LINE RI/FS CAPE LISB.
Project# :41096-412-01
PWSID :UA

WORK Order :70811
Report Completed :10/29/93
Collected :09/09/93 @ 11:00 hrs
Received :09/10/93 @ 15:55 hrs
Technical Director:STEPHEN C. EDE
Released By : *[Signature]*

Sample Remarks: SAMPLE COLLECTED BY: ALEX POLANSKY.

Parameter	QC			Method	<i>allowable</i> Ext.		Anal	Init
	Results	Qual	Units		Limits	Date		
Volatile Organics				EPA 8260				
Benzene	0.0010	U	mg/L	EPA 8260 (J) A.I		09/21 09/21		MCH
Bromobenzene	0.0010	U	mg/L	EPA 8260		09/21 09/21		MCH
Bromochloromethane	0.0010	U	mg/L	EPA 8260		09/21 09/21		MCH
Bromodichloromethane	0.0010	U	mg/L	EPA 8260		09/21 09/21		MCH
Bromoform	0.0010	U	mg/L	EPA 8260		09/21 09/21		MCH
Bromomethane	0.0010	U	mg/L	EPA 8260		09/21 09/21		MCH
n-Butylbenzene	0.0010	U	mg/L	EPA 8260		09/21 09/21		MCH
sec-Butylbenzene	0.0010	U	mg/L	EPA 8260		09/21 09/21		MCH
tert-Butylbenzene	0.0010	U	mg/L	EPA 8260		09/21 09/21		MCH
Carbon Tetrachloride	0.0010	U	mg/L	EPA 8260		09/21 09/21		MCH
Chlorobenzene	0.0010	U	mg/L	EPA 8260		09/21 09/21		MCH
Chloroethane	0.0010	U	mg/L	EPA 8260		09/21 09/21		MCH
Chloroform	0.0010	U	mg/L	EPA 8260		09/21 09/21		MCH
Chloromethane	0.0010	U	mg/L	EPA 8260		09/21 09/21		MCH
2-Chlorotoluene	0.0010	U	mg/L	EPA 8260		09/21 09/21		MCH
4-Chlorotoluene	0.0010	U	mg/L	EPA 8260		09/21 09/21		MCH
Dibromochloromethane	0.0010	U	mg/L	EPA 8260		09/21 09/21		MCH
1,2-Dibromoethane	0.0010	U	mg/L	EPA 8260		09/21 09/21		MCH
Dibromomethane	0.0010	U	mg/L	EPA 8260		09/21 09/21		MCH
1,2-Dichlorobenzene	0.0010	U	mg/L	EPA 8260		09/21 09/21		MCH
1,3-Dichlorobenzene	0.0010	U	mg/L	EPA 8260		09/21 09/21		MCH
1,4-Dichlorobenzene	0.0010	U	mg/L	EPA 8260		09/21 09/21		MCH
Dichlorodifluoromethane	0.0010	U	mg/L	EPA 8260		09/21 09/21		MCH
1,1-Dichloroethane	0.0010	U	mg/L	EPA 8260		09/21 09/21		MCH
1,2-Dichloroethane	0.0010	U	mg/L	EPA 8260		09/21 09/21		MCH
1,1-Dichloroethene	0.0010	U	mg/L	EPA 8260		09/21 09/21		MCH
cis-1,2-Dichloroethene	0.0010	U	mg/L	EPA 8260		09/21 09/21		MCH
trans-1,2-Dichloroethene	0.0010	U	mg/L	EPA 8260		09/21 09/21		MCH
1,2-Dichloropropane	0.0010	U	mg/L	EPA 8260		09/21 09/21		MCH
1,3-Dichloropropane	0.0010	U	mg/L	EPA 8260		09/21 09/21		MCH
2,2-Dichloropropane	0.0010	U	mg/L	EPA 8260		09/21 09/21		MCH
1,1-Dichloropropene	0.0010	U	mg/L	EPA 8260		09/21 09/21		MCH
Ethylbenzene	0.0010	U	mg/L	EPA 8260		09/21 09/21		MCH
Hexachlorobutadiene	0.0010	U	mg/L	EPA 8260		09/21 09/21		MCH
Isopropylbenzene	0.0010	U	mg/L	EPA 8260		09/21 09/21		MCH
p-Isopropyltoluene	0.0010	U	mg/L	EPA 8260		09/21 09/21		MCH

300
3-30-94



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COMMERCIAL TESTING & ENGINEERING CO.
ENVIRONMENTAL LABORATORY SERVICES

REPORT of ANALYSIS

Chemlab Ref.# :93.4727-9
Client Sample ID :LIS-2TB04
Matrix :WATER

5633 B STREET
ANCHORAGE, AK 99518
TEL: (907) 552-2343
FAX: (907) 561-5301

Qualities / Comments

Methylene Chloride	0.0070		mg/L	EPA 8260 (TJ-N)	09/21 09/21	MCM
Napthalene	0.0010	U	mg/L	EPA 8260	09/21 09/21	MCM
n-Propylbenzene	0.0010	U	mg/L	EPA 8260	09/21 09/21	MCM
Styrene	0.0010	U	mg/L	EPA 8260	09/21 09/21	MCM
1112-Tetrachloroethane	0.0010	U	mg/L	EPA 8260	09/21 09/21	MCM
1122-Tetrachloroethane	0.0010	U	mg/L	EPA 8260	09/21 09/21	MCM
Tetrachloroethene	0.0010	U	mg/L	EPA 8260	09/21 09/21	MCM
Toluene	0.0010	U	mg/L	EPA 8260	09/21 09/21	MCM
1,2,3-Trichlorobenzene	0.0010	U	mg/L	EPA 8260	09/21 09/21	MCM
1,2,4-Trichlorobenzene	0.0010	U	mg/L	EPA 8260	09/21 09/21	MCM
1,1,1-Trichloroethane	0.0010	U	mg/L	EPA 8260	09/21 09/21	MCM
1,1,2-Trichloroethane	0.0010	U	mg/L	EPA 8260	09/21 09/21	MCM
Trichloroethene	0.0010	U	mg/L	EPA 8260	09/21 09/21	MCM
Trichlorofluoromethane	0.0010	U	mg/L	EPA 8260	09/21 09/21	MCM
1,2,3-Trichloropropane	0.0010	U	mg/L	EPA 8260	09/21 09/21	MCM
1,2,4-Trimethylbenzene	0.0010	U	mg/L	EPA 8260	09/21 09/21	MCM
1,3,5-Trimethylbenzene	0.0010	U	mg/L	EPA 8260	09/21 09/21	MCM
Vinyl Chloride	0.0010	U	mg/L	EPA 8260	09/21 09/21	MCM
p+m-Xylene	0.0010	U	mg/L	EPA 8260	09/21 09/21	MCM
o-Xylene	0.0010	U	mg/L	EPA 8260	09/21 09/21	MCM

ad
3.30-97

* See Special Instructions Above
* See Sample Remarks Above
U = Undetected, Reported value is the practical quantification limit.
D = Secondary dilution:

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than



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ENVIRONMENTAL SERVICES IN ALASKA, COLORADO, UTAH, ILLINOIS, OHIO, MARYLAND, WEST VIRGINIA, NEW JERSEY, SOUTH CAROLINA



CT&E Environmental Services Inc.

CT&E Ref.# 95.1524-3
Matrix WATER
Client Sample ID LISBURN LIS-6TB01

Client Name ICF KAISER ENGINEERING
Ordered By
Project Name CAPE LISBURN IRA
Project# 41098-614-02
PWSID UA

RUSH Order 17340
Printed Date 08/24/95 @ 11:44 hrs.
Collected Date 08/17/95 @ 18:15 hrs.
Received Date 08/21/95 @ 12:15 hrs.

Technical Director STEPHEN C. EDWARDS

Released By *Stephen C. Edwards*

Sample Remarks: SAMPLE COLLECTED BY: G. JENSEN.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal. Date	Init
Aromatics-BTEX				EPA 602 18AAC78	n/a			
Benzene	0.0010	U	mg/L	EPA 602 18AAC78		08/21/95	08/21/95	NMP
Toluene	0.0010	U	mg/L	EPA 602 18AAC78		08/21/95	08/21/95	NMP
Ethylbenzene	0.0010	U	mg/L	EPA 602 18AAC78		08/21/95	08/21/95	NMP
p,m Xylene	0.0010	U	mg/L	EPA 602 18AAC78		08/21/95	08/21/95	NMP
o-Xylene	0.0010	U	mg/L	EPA 602 18AAC78		08/21/95	08/21/95	NMP

See Special Instructions Above

See Sample Remarks Above

U = Undetected, Reported value is the practical quantification limit.

D = Secondary Dilution

UA = Unavailable

NA = Not Analyzed

LT = Less Than

GT = Greater Than